Strategic Plan for Surveillance and Prevention of Non-Communicable Diseases in Bangladesh 2007-2010

Directorate General of Health Services
Ministry of Health and Family Welfare

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PREFACE

Bangladesh has been passing through epidemiological transition from communicable diseases to non-communicable diseases. It is the high time to take new initiative or strengthen existing programmes to face the emerging public health challenges posed by non-communicable diseases in Bangladesh.

The national strategic plan for surveillance and prevention of non-communicable diseases has been developed for the first time in Bangladesh on the basis of consensus of a group of broad-based stakeholders through a series of exercises. This document provides a common strategic framework as well as guidance to effectively address this challenge. All stakeholders from public and private sector are requested to play due role in implementing this strategic plan to contain and revert the ongoing epidemic of non-communicable disease and injuries.

Finally, the Government expresses sincere appreciation to the WHO for bringing this issue forward and providing extensive technical assistance to develop this strategic document. The assistance provided by UNICEF and UNFPA for finalizing the injury and cervical cancer sections, respectively, is also appreciated.

List of Acronyms and Abrreviations

ACS	Alliance for Community Based Surveillance
BanNet	Bangladesh Network for Non-Communicable Disease Surveillance and Prevention
BHIS	Bangladesh Health and Injury Survey
BIRDEM	Bangladesh Institute of Research, Rehabilitation in Diabetes, Endocrine and Metabolic Disorders
BSMMU	Banga Bandhu Sheikh Mujib Medical University
CIPRB	Centre for Injury Prevention and Research
COPD	Chronic Obstructive Pulmonary Diseases
DGHS	Directorate General of Health Services
ECOH	Ekhlaspur Center of Health
GOB	Government of Bangladesh
HNPSP	Health Nutrition Population Sector Plan
IEDCR	Institute of Epidemiology, Disease Control and Research
IHD	Ischemic Heart Diseases
MDG	Millennium Development Goal
MIS	Management Information System
MOH&FW	Ministry of Health & Family Welfare
NCD	Non-communicable Disease
NDSC	National Disease Surveillance Center
NHF	National Heart Foundation
NICRH	National Institute of Cancer Research and Hospital
NICVD	National Institute of Cardiovascular Diseases
NIDCH	National Institute of Disease of Chest and Hospital.
NIMH	National Institute of Mental Health
NIO	National Institute of Opthalmology
NITOR	National Institute of Trauma, Orthopedics and Rehabilitation
PRSP	Poverty Reduction Strategy Paper
SIP	Strategic Investment Plan
SOP	Standard Operating Procedure
STEPS	Stepwise Surveillance
TASC	The Alliance for Safe Children
ZHF	Zia Heart Foundation

EXECUTIVE SUMMARY

There are considerable achievements in health and population sector in Bangladesh in recent years. However, the people continue to suffer from high levels of preventable morbidity and mortality from communicable diseases, poor maternal and child health, and a rising burden of non-communicable diseases (NCDs), injuries, blindness and mental illness. The people are double burdened with communicable and NCDs that lead the Government to formulate a strategic plan to combat these problems in the country.

Conventionally NCDs used to refer to major chronic diseases inclusive of heart disease, stroke, diabetes, cancer and chronic respiratory diseases. However, this national plan includes other commonly prevalent non-communicable diseases or conditions like mental illnesses, injuries and blindness because of the country's requirements to be addressed through synchronized public health measures within a common strategic framework. Controlling common risk factors (such as tobacco consumption, physical inactivity, and unhealthy diet) can lead to decrease in conventional NCDs. At the same time surveillance, prevention and management of injuries, mental illnesses and blindness could be incorporated in to this platform for a cost effective outcome.

Addressing NCDs in Bangladesh is a multifaceted challenge. Appropriate strategic directions and necessary funds to facilitate the prevention of NCDs as part of the integrated development and health agenda of Bangladesh are essential. Institutional, community and public policy changes are required to be incorporated within a long-term and life-course perspective.

The *Strategic Plan for Surveillance and Prevention of NCD*s has been developed with inputs generated through an extensive process within the various domains of NCDs and is reflective of broad-based consensus. It puts emphasis on the strengths of partnerships and outlines a scope of interventions that are built on shared responsibility of various sectors of the Government, allowing agencies to participate according to their own missions and mandates.

A common framework for action is modeled to impact a set of indicators through the combination of a range of actions. It targets the *at-risk* population by adopting the high-risk and population approaches set within an enabling policy and regulatory environment. It encompasses two sets of strategies - those that are *common* across the entire range of NCDs and others that are *specific* to each NCD domain. The approaches are integrated with the existing system rather than a vertical one. This will help strengthen the pubic health configuration and influence healthcare systems towards a more preventive orientation.

The major areas that are focused in this document are:

Surveillance of NCDs and their risk factors:

A network entitled "Bangladesh Network for Surveillance and Prevention of NCDs (BanNet)" has been developed and made functional. It will address NCDs from a common forum that includes government organizations, public private partnership organizations and non-profit non-governmental organizations. The Network will share information and experience for making the NCD surveillance, prevention and management more efficient. An alliance for community-based surveillance and prevention of major NCDs and their risk factors has been developed. Non-governmental and public private partnership organizations which have proven evidence

of research may become a member of this Alliance. Care will be taken to have representation of the whole country.

Generation of data and their dissemination in the form of InfoBase, reports and newsletters are the key strategies. These will ensure availability of information for policy makers, public health managers and researchers in line with other countries in the Region.

Health promotion and prevention of NCDs:

The paradigm of NCD prevention is considered as a multidisciplinary one. It calls for a diverse range of actions involving policy development, legislation, regulation, public and professional education, guideline development, media interventions and research. These are primarily directed towards tobacco control, unhealthy diet and physical activity taking in into accounts of current scenario in the country. Monitoring and evaluation are planned to be woven into this framework, making it necessary to institute a combination of measures and interventions at multiple levels.

Finally, this first ever initiative in Bangladesh is formalizing a broader platform of players for combating the major NCDs including injury, mental health and blindness with a view to ensure optimum health of the people.

INTRODUCTION

Bangladesh is passing through an epidemiological transition from communicable diseases to non-communicable disease (NCDs) and currently has a double burden of diseases. NCDs have already appeared as a major public health problem. Respiratory distress (asthma and COPD), stroke/paralysis, heart disease, high blood pressure, diabetes, drowning, accident/injuries, and cancers were amongst the top twenty causes of deaths in 2000 (BBS 2000). In most cases, it is the economically productive workforce, which bears the brunt of these diseases.

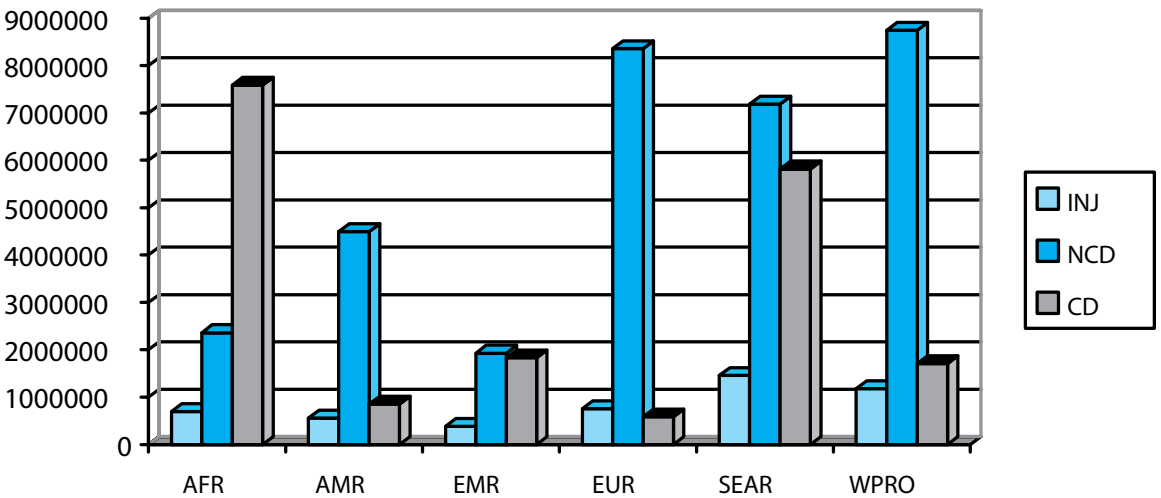
The present effort is the first ever national endeavor to develop a strategic plan aimed at preventing and controlling these diseases. Although it is accepted beyond doubt that NCDs are increasing gradually for decades, systematic data on various dimensions of the problem are inadequate. This document attempts to reorient health services to a more public health orientation around NCDs through strengthening of surveillance, health promotional activities, building up professional capacity, basic infrastructure and by ensuring availability of and accessibility to essential information. This strategic plan of action is focused on achieving a set of objectives allowing indicator based evaluation.

This strategic plan of action attempts to drive efforts from all corners in both public and private sectors towards a common target of NCD prevention by facilitating networking among relevant institutes, levels of care and professional organizations. It maximizes on the strengths of partnerships and outlines a scope of interventions that are built on shared responsibility of various sectors of the Government, allowing Agencies to participate according to their own missions and mandates. If implemented in its true spirit, the strategic plan of action has the potential to improve outcomes across the range of NCDs in Bangladesh.

EMERGING GLOBAL AND REGIONAL THREATS OF MAJOR NCDS

NCDs mainly referred to major chronic diseases encompassing cardiovascular problems, cancer, diabetes and chronic respiratory diseases and their risk factors. However, other diseases and conditions like mental illnesses and injuries have also been clustered and addressed through harmonized combined strategic framework. Globally, NCDs are increasingly recognized as major causes of morbidity and mortality. The World Health Report 2002 had illustrated that NCDs account for almost 60% of deaths and 46% of the global burden of disease (WHO 2002). If present trend continues, by 2020, these diseases are expected to account for 73% of deaths and 60% of the disease burden. The major NCDs are cardiovascular diseases (ischemic heart disease, hypertension, and stroke), cancer, chronic obstructive pulmonary diseases (COPD) and diabetes mellitus. In 2000, the World Health Assembly passed a resolution (WHA53.17) on the prevention and control of NCDs urging Member States to establish programmes in line with the framework of the Resolution.

Figure 1 : Causes of deaths by WHO Regions, WHR 2002



AFR	African Region	SEAR	South East Asia Region
AMR	Region of the Americas	WPRO	Western Pacific Region
EMR	Eastern Mediterranean Region		
EVE	European Region		

Injury is fifth leading cause of death and disability worldwide among those aged 15-59 year (WHO 2002). It is also a very important public health problem in this part of the world. The World Health Report 2003 has identified cardiovascular disease, tobacco and road traffic hazards as three neglected global epidemics. These growing threats warrant immediate action. Above figure indicates that NCDs are major causes of deaths in all regions except African Region. In the South East Asia Region, NCDs account for 54% of all deaths. The epidemiological and demographic transition further increases the NCD-related mortality, morbidity and disability.

CHALLENGES AND OPPORTUNITIES OF NCD PREVENTION IN BANGLADESH

Addressing NCDs in a developing country like Bangladesh is a multifaceted challenge. Unplanned urbanization, unregulated tobacco and food and beverage industries, chaotic road conditions at the backdrop of widespread ignorance are the breeding ground of these diseases and disabilities. Unfortunately, most of them are beyond direct control of health sector. Appropriate strategies under high level of political commitment and necessary funding to facilitate the prevention of NCDs as part of the integrated development and health agenda of Bangladesh are essential. Implementation of prevention activities is also a big challenge because of diverse nature of strategies that need to be organized under one umbrella. The inclusion of injury, mental health and blindness in to the conventional broad definitions of NCDs may, however, give the impression that the mandate is broad, in fact, too widespread.

A broader platform of voices would bring a better outcome. This plan of action has explited the voices from injuries, blindness and mental illnesses in to the traditional framework of NCDs. Therefore, inputs from all relevant sections were taken and a broad-based consensus was developed. This strategy has been formulated to overcome the trend of vertical programme implementation approach so that these diseases can be targeted through a set of harmonizing actions with existing public health systems and incorporating contemporary evidence-based concepts into this approach. The approach adopted as pail of the actions that horizontally integrates the prevention and control of NCDs with the existing primary healthcare infrastructure, thus contributing to strengthening of the pubic health configurations.

Monitoring and evaluation are planed to be woven into a broader framework, making it necessary to institute a combination of measures and interventions at multiple levels in tandem with effective and rigorous formative research. Addressing a common framework of action (CFA) modeled in this document would be easier and effects will be synergistic. This CFA is valid in the context of the limitations that Bangladesh's burdened health agenda that faces challenges in accommodating vertical programmes.

The health system of Bangladesh is currently undergoing a process of reform under a sectoral approach of Health, Nutrition and Population Sector Program (HNPSP), which was preceded by Health and Population Sector Plan (HPSP) implemented from July 1998 to December 2003. The Government also designed a Strategic Investment Plan (SIP) for 2003-2010 and Revised Program Implementation Plan (RPIP) for 2006 –2010 (MOHFW 2005) . These documents of the Government have identified NCDs and injuries as priority objectives to achieve. Indicators and bench marks related to NCDs are already made part of these documents. Therefore this is an excellent opportunity to bring forward the NCD agenda for meaningful actions.

NCD SITUATION IN BANGLADESH

General health situation:

Bangladesh has made considerable progress in past decades in improving the health of the population. The population growth rate has declined, life expectancy at birth has increased, and infant and under 5 mortality rates have significantly reduced. There are also signs of reduction of the Total Fertility Rate (TFR). As a result the changes of early demographic transition have become apparent in the age structure of the population. In spite of all those improvements, there are many areas of concern for health development in the country. Maternal and neonatal mortality still remains unacceptably high. Prevention and control of communicable diseases continues to be of concern. Moreover, globalization, unplanned urbanization, and environmental and lifestyle factors on a background of ageing population have been contributing significantly to increase burden of non-communicable diseases (NCDs). It is estimated that by 2010, NCDs will be responsible for 59% of deaths, compared to 40% in 1990.

NCDs situation:

Although the country is lacking a good NCDs surveillance system, the magnitude of NCDs is considered to be fairly high in Bangladesh. In 2000, top ten causes of death in Bangladesh included asthma/COPD, stroke, heart diseases, hypertension, and diabetes (BBS 2002). Hospital data indicate an increasing trend of admissions of major NCDs. A recent study in medical college hospitals observed that about one third of the admissions are due to major NCDs for patients aged 30 or above (Zaman et al, 2007).

Cancer:

Due to lack of reporting system and under-diagnosis of cancer the real situation is not known. Population-based data on cancer are lacking. A recent WHO study estimated that there are 49,000 oral cancer, 71,000 laryngeal cancer and 196,000 lung cancer cases in Bangladesh among those aged 30 years or above (Zaman et al, 2007). The same study observed that 3.6% of the admissions in medical college hospitals for the same age group are due to cancers of oral cavity, larynx and lungs. Tobacco consumption is the leading cause of lung cancer in Bangladesh. Tobacco control programme needs to be intensified for prevention of lung cancer. A hospital-based registry in the National Institute of Cancer Research and Hospital (NICRH) indicates that 11903 new cancer patients attended the outpatient departments in 2005-6 (NICRH 2007). The highest frequency is observed for lung cancer (24.1%) in men followed by breast cancer (23.7%) and cervical cancer (22.8%) in women. These three cancers constitute 37.4% of all cancers irrespective of sexes. Bangladesh has high incidence of cervical cancer. This is related to early marriage, multiparity, and low socio-economic conditions. Early detection of cervical cancer by screening will significantly reduce the premature mortality of women, especially the poor, in Bangladesh. Screening and self examination programme for early detection of breast cancer should be promoted.

Cardiovascular Diseases:

There are insufficient population-based data on ischaemic heart disease (IHD) but tertiary level hospital data indicate that it has become the third killer disease in Bangladesh. Prevalence of IHD

and stroke in Bangladesh population is 2.2% and 1.7%, respectively. IHD and stroke constitute 7.7% and 8.9% of the hospital admissions among those aged 30 or above (Zaman et al, 2007). Another study has reported a 3.4% prevalence of IHD based on pathological Q on ECG in a free living sample aged 18 or above (personal communication Dr M M Zaman). A rural clinic-based data showed the prevalence of hypertension to be 12% (Zaman et al 2004). Population-based study also found similar prevalence of hypertension (13%) (Zaman 2001), which was supportive of a meta-analysis of all previous population studies in Bangladesh (12%) (Zaman et al 1999). Metabolic syndrome, a precursor of IHD and diabetes, was found to be fairly common (2.9%) in rural women (Zaman et al 2006). Prevalence of rheumatic fever (RF) and rheumatic heart disease (RHD) in the 1990s was 3.8 per 1000 children aged 5-15 years (Ahmed et al 2005). A recent report shows that prevalence of RF and RHD further declined to 1.2 per 1000 children aged 5-22 years (unpublished data, WHO 2005). This was supported by a declining trend observed in hospital (Zaman et al 2001). This decline could be further accentuated by applying the cost effective secondary prophylactic measures (WHO Expert Committee 2004).

Chronic obstructive pulmonary disease (COPD):

Prevalence of COPD in people aged 30 or above is 3% in the general population and 6% in medical college inpatients (Zaman et al, 2007). The National Institute of Diseases of Chest and Hospital, (NIDCH) the only tertiary referral hospital for chest diseases in Bangladesh, admits about 4500 patients annually in the department of respiratory medicine, of them 19% suffer from COPD (Dr Mostafizur Rahman, personal communication). Smoking and indoor air pollution are thought to be the two most important causes of COPD in Bangladesh.

Diabetes mellitus:

From the hospital record of Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic disease (BIRDEM), it was found that number of diabetic patients has been increasing exponentially since 1960. Population data indicate an increasing trend in diabetes prevalence especially in urban areas. In rural adults, the prevalence is about 5% (Sayeed et al 2002, Zaman et al 2001), and in urban area the prevalence is just double (10%) (Dr Abu Sayeed, personal communication). This could reflect the effect of unplanned urbanization that lacks in environment for physical activity, consumption of junk food and exposure to stressful life in cities. Therefore diabetes and cardiovascular disease prevention in general should develop partnership initiatives with local governments such as healthy settings.

Mental illness:

Nationwide survey on mental health in Bangladesh revealed that 16.1% of adult population were suffering from some sorts of mental disorders (Firoz et al 2005), 0.9% being suffering from epilepsy and 0.1% from mental retardation. These are most common type of mental illness Awareness level about having the mental illness was very low (8.5% to 15.1%). Medical care sought for the mental illnesses ranged from very low (15.1%) to fairly acceptable level (63.5%) depending on the type and severity of illnesses. The burden was higher in females. Studies indicate that psychiatric morbidity is a significant but under-recognized public health problem in Bangladesh.

Injury:

The nation-wide community based Bangladesh Health and Injury Survey (BHIS) reported an estimated 70,000 annual deaths due to injury (unpublished observation, BHIS) that includes 30,000 children of under 18 years (DGHS 2005). The social and economic costs of injuries are also noteworthy. Road traffic injuries alone cause a loss of about 2% of GDP in Bangladesh. The estimated total annual cost of road traffic crashes is approximately US$ 230 million. Road traffic injury situation is gradually worsening in Bangladesh (Hoque mm 2003). This neglected epidemic should be appropriately dealt with. Household and occupational injuries are also very common. Injuries during emergencies such as drowning, snake bite and electrocution have also become a major concern (WHO/UNICEF 2005). Homicidal acid burn is another social curse that need priority attention (WHO 2005).

Blindness:

According to The Bangladesh National Blindness and Low Vision Survey 2000, the age standardized blindness prevalence rate is 1.5% and, thus, there are approximately 675,000 blind adults (aged 30 or above). Cataract is the predominant (79.6%) cause of bilateral blindness. The cataract surgical coverage is notably low (32.5%). The main causes of low vision were retinal diseases (38.4%), corneal diseases (21.5%), glaucoma (15.4%) and optic atrophy (10.8%).

Using the WHO global estimate of childhood blindness, there are about 40,000 blind children in Bangladesh. Childhood cataract and corneal scarring are the leading cause of childhood blindness in Bangladesh. Corneal scarring could be entirely prevented through effective primary eye care services in the community. Assuming a prevalence of 4% of children aged 5 to 15 years to have visual acuity of less than 6/18, it is estimated that there are approximately 1.3 million children have visual impairment due to refractive errors, the large majority of which are amenable to correction. Community based preventive measures such as control of vitamin A deficiency, diarrhoeal diseases, malnutrition and measles is to be strengthened further. National Eye Care Plan has been undertaken by the government of Bangladesh to control blindness (BNCB 2005).

Present scenario of NCD surveillance and prevention:

Information on priority diseases of public health importance is essential for public health decision-making in Bangladesh. Such information can be generated by an effective disease surveillance system. Although its all ingredients are already available, a concerted mechanism is yet to be developed. There are data from sporadic surveys. Reporting of hospital data is incomplete and irregular. These are not adequate to identify priorities of the country, necessary advocacy, monitoring and evaluation of control programmes.

The present system for disease surveillance of the Directorate General of Health Services (DGHS) is mainly hospital-based and focused on communicable diseases. Some major NCDs such as ischaemic heart disease, cancer, and COPD had not been included in the routine reporting forms of the hospitals. However, some of them are recently included in the forms as per recommendations of a Consultative Meeting held in BARD, Comilla in Jan 2004 (DGHS 2004). But these are yet to be applied in the field.

At the upazila (sub-district) and district level, health facilities maintain a disease profile of patients and reports are sent upwards monthly. However, these reporting systems need improvement in terms of data collection, compilation, reporting and feedback. To improve the situation, government has set up the National Disease Surveillance Centre (NDSC) under National Disease Surveillance Program, at the Institute of Epidemiology, Disease Control and Research (IEDCR), Mohakhali, Dhaka with technical assistance from WHO. A favorable change in the NCD reporting and recording is gradually becoming visible. It is understandable that the data collected from hospitals is not enough for advocacy leading to a favourable decision making. We need to collect data from the population also. These are more useful for advocacy, priority setting and appropriate fund allocation.

Health care facilities for NCDs:

Facilities for diagnosis and management of NCDs, blindness, mental illnesses and injuries are still inadequate at primary care level. At district level specialists for all major NCDs except cancers are made available. Diabetic Associations are present in most of the districts. However logistics for diagnosis and management of all NCDs including mental illnesses and injuries are still inadequate. Medical college hospitals are providing tertiary care in various regions of the country. Some tertiary level specialized institutes / hospitals equipped with advanced technology and skilled manpower are available for the treatment of NCDs but almost all of them are located in Dhaka city. Pre-hospital care for injuries is almost non-existent. Management of all injuries caused by RTI, fall or occupational hazards, severe burns including acid burns, electrocutions etc. needs further improvement even at secondary and some tertiary level facilities.

Community level initiatives:

With technical assistance from WHO, community-based mental health promotion and blindness prevention has just been initiated in several upazila of the country. These models will be replicated if found useful and effective. One demonstration project on NCDs has been started in Dhaka city. ACS (see below) has already started surveillance of major NCDs and their risk factors in five different parts of the country. Under the guidance and leadership of the DGHS, Centre for Injury Prevention and Research, Bangladesh (CIPRB) has developed a community based injury surveillance system in three upazila in collaboration with The Alliance for Safe Children (TASC) and UNICEF.

GOAL AND OBJECTIVES OF THE STRATEGIC PLAN

Goal

To reduce the burden of NCDs including injury, mental disorders and blindness in Bangladesh.

Objectives

1. To establish an integrated mechanism of sustainable collection, analysis and dissemination of essential data on NCDs and their major risk factors, and provide evidence base for public health decision making for containing NCDs.

2. To strengthen capacity of the health system for prevention and control of NCDs.

3. To strengthen health promotion measures including risk reduction and behavioral change through healthy lifestyle and well-being campaigns to combat public health threats caused by unhealthy-lifestyle, occupation and environment related diseases, mental illness and injuries.

4. To assist communities in terms of knowledge and creating favorable environment to empower people to become responsible for their health.

5. To develop a common platform by promoting network formation among the relevant stakeholders for surveillance, prevention and management of NCDs.

PUBLIC HEALTH RESPONSE TO THE THREATS OF NCDS

As already mentioned, NCDs impose a significant economic burden on already strained health system, and inflict great cost on the society. Health is the key determinant and a precursor of economic growth. The WHO Commission on Macroeconomics and Health has demonstrated the disruptive effect of disease on development, and the importance for economic development of investments in health (WHO 2001). Programmes aimed at promoting healthy diet, physical activity and controlling tobacco for prevention of NCDs should be regarded as key component of policies to achieve development goals. To stimulate such policies WHO has developed a Global Strategy on Diet, Physical Activity and Health, which was adopted by the World Health Assembly in 2004 (WHO/FAO 2003, WHO 2004). WHO has developed a Framework Convention on Tobacco Control, which has been adopted by the World Health Assembly in 2003 (WHO 2003). These two documents in combination provide the basis and guidance for primary prevention of NCDs. The Government has the central role, in cooperation with other stakeholders, to create an environment that empowers and encourages behavior changes by individuals, families and communities. There is a need to integrate the following cardinal elements into a national plan of action for implementing the above documents:

1. A life course perspective: A life course perspective is essential for the prevention and control of NCDs. This approach starts with prenatal nutrition, pregnancy outcomes, and exclusive breastfeeding for six months, and child and adolescent health; reaching the children at school, adults at worksites and other settings and the elderly that encourages a healthy lifestyle.

2. Policy development: Well designed policy measures can be very powerful tools in affecting changes in diet, physical activity and tobacco. It has been seen that even a single policy change can be extremely effective with far reaching effects in reducing risks at individual and population level. Policies must, therefore, address these complex issues directly and decisively. Measures must encompass a wide range of educational as well as regulatory measures, acting through price and non-price mechanisms. A tobacco control law is already in action but its implementation must be strengthened further. An amendment to it is necessary to make it more comprehensive.

3. Multi-sectoral, multi-disciplinary and multi-level interventions: Though the ingredients of this strategic plan are sound, it needs to be supported by a clear, strong and sustained policy level commitment backed by a legislative framework that is supportive of multi-stakeholder models. Implementation of this plan of action will lead to generation of new information relevant for improving the performance of the health system by fostering public-private partnerships within evidence-based models. Multi-sectoral and multi-disciplinary participatory actions involving relevant sectors considering the long term perspectives and recognizing the complex interaction between personal choices, social norms, and economic and environmental factors will be the key for implementation of the action points.

4. Empowerment of people: Health education, skills enhancement and provision of a supportive environment are essential ingredients for empowering communities as well as individuals. The pathway to health promotion involves up-scaling of knowledge, motivation and skills as well as the provision of environment which can help people to make and maintain healthy choices.

STRATEGIES

The strategies on NCD surveillance and prevention in Bangladesh consist of strategies on surveillance as well as strategies on health promotion, disease prevention and health-service care.

Strategies on NCD Surveillance:

Improving networking, providing standards, supporting and strengthening institutionalization of NCD surveillance at all levels are the key strategies that can be elaborated as follows:

1. To functionally integrate the facility-based NCD surveillance with that of the existing communicable disease surveillance system.
2. To facilitate the collaborating networks among surveillance institutions and various sectors involved in NCD prevention.
3. To create mechanism for incorporating NCD surveillance into national health information system.
4. To develop a standardized registration system on certain NCDs at health facilities as well as in communities.
5. To promote effective and timely utilization of NCD surveillance data.
6. To strengthen capacity of the institutes/organizations on various aspects of NCD surveillance.

Strategies on health promotion and prevention of NCDs:

Advocacy and community empowerment are the key strategies for prevention of NCDs and promotion of healthy lifestyle. At national level, efforts are more directed to the advocacy and conditioning, while at the district/municipality level it is more directed to community empowerment. The detailed strategies are listed below:

1. To support and facilitate the development of a healthy public policy which supports NCD prevention through promotion of healthy lifestyle and safety measures.
2. To support and facilitate the functioning of collaborating networks among stakeholders involved in promotional activities and potential partners for NCD prevention.
3. To enhance active involvement of health care workers in health promotion for NCDs by promoting healthy lifestyle.
4. To improve capacity of professionals in health promotion at central as well as district/municipality level for NCD prevention through promotion of healthy lifestyle and safety measures.
5. To improve knowledge and skills of the community in maintaining their own health and safety in NCD prevention.
6. To develop and implement pilot interventions to identify the effective health-promotion technology for NCD prevention.
7. To advocate for developing and implementing legislations and regulations.

Strategies on health care services for NCDs:

Although there are provisions of prevention of NCDs, there will always be a huge cumulative number of people with diseases at their various stages. Therefore, there is a need for strategies for better management of NCDs. WHO has already undertaken a "Global initiative for scalling up management of chronic diseases" (WHO 2006). Considering the limited resources and the characteristics of NCD services (long-term and expensive medication, surgical procedures), the strategy is directed to improve the professionalism of health care providers, ensuring basic medicines and diagnostic facilities at primary care level, and further development of standard operating procedures (SOP). The key strategies are listed below:

1. To develop competency-based trainings for health care providers in dealing with NCD care.
2. To develop collaboration among educational institutions related to NCD care to incorporate relevant materials in their curricula.
3. To develop standards and guidelines for NCD services at all levels of healthcare by involving professional organizations, program managers and health care providers.
4. To develop screening facilities for early detection of NCDs at all levels of health care system.
5. To improve promotion and prevention activities on NCDs at health institutions.
6. To advocate for making basic medicines and diagnostic facilities for NCDs available at primary care level.

NCD SURVEILLANCE

In view to develop a cost-effective programme on NCD prevention, it is necessary to obtain essential information on NCDs and their risk factors. However, considering the resource constraints priorities have to be identified for population-based surveillance (see below).

Coordinating mechanism and infrastructure for NCDs surveillance

NCD surveillance is a relatively new endeavor in Bangladesh. Therefore, its plan of implementation needs to be simple and easily administrable. The Ministry of Health and Family Welfare has identified Director Disease Control as the Focal Point for NCD Surveillance and NCD Risk Factor InfoBase. S/he will bear overall responsibility of these activities. Because the data will be compiled and analyzed in line with the MIS of the DGHS, a process of establishing a facility for the Working Group in the office of the Director MIS has already been started.

Facility-based surveillance of NCDs:

At local level, Medical Officer/Resident Physician/Resident Surgeon/Consultant will have the primary responsibility of data collection and compilation of reports under the supervisions of respective director/professor/head of the departments of the respective hospitals/departments/institutes/ organizations. Statistical units, where exist, of respective organizations would take primary role in preparing the reports.

Surveillance shall be carried out in three phases. However, once started, the activitices will continue simultaneously. In the first phase, some of the identified specialized hospitals and postgraduate institutes providing care for NCDs would start maintaining systematic record of all admitted patients with NCDs in prescribed forms and send reports monthly to MIS, DGHS. Reporting forms for specialized hospitals/organization are already designed and approved by BanNet. In the second phase some of the government medical colleges will start sending reports using specific forms. Others will use forms for integrated disease surveillance (DGHS 2004). In the third phase six district hospitals in six divisions and in the fourth phase six upzila health complexes in the same selected districts would start sending report to MIS, DGHS. (flow charts are given in Appendix A). Timeline, name of the selected organizations and responsible persons for surveillance activities are given in the Action Plan (page 42).

Community-based surveillance of NCDs:

It is recognized that the data collected from hospitals will not be representative of the population at large. Therefore, community based data collection system needs to be developed in addition to hospital data collection system. Conduction of national surveys and epidemiological studies at regular intervals by government or non-government organizations can provide population level data. Information about the incidence and prevalence of diseases at population level is useful for advocacy, priority setting and appropriate fund allocation. These data are also essential for evaluating the attainment of goals and targets, and to guide technical strategies and responses. Alliance for Community-based Surveillance of NCDs (ACS) will play lead role in community-based surveillance of NCDs. For proper functioning of this Alliance a Secretariat will be established. The ACS has been formed by selected group of members of the BanNet. This was endorsed in the second meeting of BanNet held in NHFH&RI on 22 March 2005. Interested organizations may apply to BanNet for joining the Alliance.

WHO Stepwise surveillance (STEPS) approach is followed for risk factors. The priority diseases include IHD, stroke, cancers of oral cavity, lung, breast and cervix, diabetes mellitus, and COPD. The priority risk factors include salt, fruit and vegetable intake, tobacco consumption, physical activity, central obesity and blood pressure. These can be accomplished by periodic survey of risk factors, disease and registries. Risk factor surveys may also be conducted by utilizing the existing practice of Bangladesh Health and Demographic Survey (BHDS) and Geographical Reconnaissance (GR). ACS will compile data to disseminate in the form of information such as the NCD InfoBase.

Case definition for surveillance:

A case definition is important for an effective surveillance system. Investigation facilities for accurate diagnosis of a few NCDs are still inadequate in many of the hospitals, which need to be strengthened gradually. Training of doctors on death certification is necessary to ensure reliability of the mortality information. At initial stage clinical diagnosis by a qualified medical officer and supported by laboratory investigation where available will be reported. However, attempts will be made to develop standard feasible case definition for each major NCDs taking account of the available investigation facilities and level of reporting organizations. There is a need for continuous improvement in the capacity of organizations and the health system. In patients with multiple diagnoses of diseases, the primary diagnosis should be registered and reported. International Coding of Diseases (version 10) may be followed but extensive training will be necessary.

Main activities for NCD surveillance:

a. To develop an effective mechanism for population and hospital-based surveillance:

At present specialized health care service for NCDs are mostly provided by several government and non-government tertiary care specialized hospitals, medical college hospitals and postgraduate institutes. These institutions provide limited data to the national NCD surveillance system. A few non-governmental organizations started community based disease survey and registry. Development of a standardized mechanism for collection and reporting of mortality and morbidity data from those government and non-governmental organizations would be an important first step for an efficient national NCDs surveillance system. An alliance for community-based surveillance of NCDs (ACS) consisting of organizations (public or private) which have documented evidence of research or keen in developing themselves as research organizations has already been formed to implement population-based data collection action plan. However, they must have their infrastructure in the area in which they want to work. This is essential for sustainability of the surveillance. Government and development partners also need to provide support to the ACS for such activities.

b. To develop information dissemination mechanism

Timely availability of valid data is essential for proper planning and resource allocation in public health system. Data will be made available in a single platform so that data can be accessed easily by people who need them. Dissemination will include:

1. NCD InfoBase: A national InfoBase on NCDs will be developed and maintained to effectively disseminate and promote utilization of information collected through all surveillance activities. Information from InfoBase will be provided through electronic format, hard copies and free web access. It will have information from population-based studies. Government of Bangladesh has already identified Director Disease Control as the national focal point for NCD InfoBase (Ref: MoH memo no. WHO2/Pro29/2004/406 of 5 August 2004) and national committee with representatives from the network members and the Ministry. The committee members include program managers for NICVD, NICRH, BIRDEM, NCCRFHD, NHFH&RI, ZHF&RC and National Capacity Building Project for Tobacco Control (Senior Assistant Secretary, WHO 2). The InfoBase will be posted in the website of DGHS with links to Ministry of Health and Family Welfare, WHO country office websites. A working committee from BanNet members will help to maintain and update the InfoBase after thorough evaluation and clarification of data on NCDs. Two members of the working group have been trained by SEARO. Data to be posted in the InfoBase need to be identified. It was decided that articles that are published in the indexed journals, and data published in the Government reports (BBS, DGHS, MOHFW, etc) will be included.
2. Publication of newsletters, reports, CDs etc containing surveillance data.
3. Dissemination seminars.

c. To develop human resources for NCD surveillance

Training of the concerned personnel in the respective institutions to improve the recording and reporting system will be undertaken. Motivation of the people such as doctors, nurses, record keepers and statisticians are very important for a successful surveillance system. They are being trained to develop institutional registry of NCDs, as already started in BIRDEM for diabetes, NICRH for cancers, and National Center for Control of Rheumatic Fever and Heart Diseases (Dhaka) and Ekhlaspur Center of Health (Chandpur) for rheumatic heart disease. Training of Directors and Head of the departments of institutes/medical college hospitals, Civil Surgeons and other senior doctors/matrons including statisticians will be held in Dhaka. Others will be trained at district level. On-going hands on training as well as refreshers training may be organized at local levels. NCD surveillance focal point will take steps to train manpower on use of computers, data management, analysis and interpretation for improving the efficiency of the system.

d. To strengthen vital registration system

Government has initiated birth and death registration at population level at union (rural area), ward (urban area) levels but it is yet to be very effective one. Vital registration will be strengthened further and the ACS will be supported for death registry. This will enable us to know cause of deaths at population level.

Integration of NCD Surveillance with Communicable Disease Surveillance:

This approach envisages all surveillance activities in a country as a common public service that carries many functions using similar structures, processes and personnel. The surveillance activities that are well developed in one area may act as driving forces for strengthening other surveillance activities, offering possible synergies and common resources. The integrated approach to surveillance would allow for greater efficiencies, more effective and sustainable capacity building and

improved use of data at national and sub-national levels, while taking into account programme specific needs. This will ensure availability of high quality information in a cost-effective manner. The goal of integrated disease surveillance is to ensure capacity development to define, detect and respond to public health problems, communicable or non-communicable.

NCD surveillance has some unique features which have dissimilarity with communicable diseases such as 'Risk Factor Approach'. However, facility based routine NCD surveillance bears similarity with communicable disease surveillance. Therefore, it is only the institutional/facility-based surveillance that needs integration. These data will flow to MIS, DGHS and finally for analysis to National Disease Surveillance Centre (NDSC), IEDCR under the administrative leadership of Director Disease Control. The core functions of such surveillance include data collection, data reporting, data analysis and response lies with the NDSC. NCD will provide support services such as training, advocacy and resource management. The flow of data has been depicted in (Appendix A).

PROMOTION OF HEALTH AND PREVENTION OF MAJOR NCDS

Prevention of NCDs through promotion of healthy lifestyle is necessary during all phases of life. This is done by empowering various components in the community, professional organizations, NGOs, mass media, and private sectors to accelerate community empowerment in preventing and controlling of NCDs. Health promotion for NCDs focuses on the healthy population and population-at-risk, while at the same time taking care of those who have contracted the disease.

The key to the control of the global epidemic of NCDs is primary prevention. The aim is to avert epidemics wherever possible and to reverse them where they have begun. Primary prevention is avoiding the onset of the disease. It can be achieved through two basic strategies: high risk approach and population approach. In the former, intervention is directed to subjects with acknowledged risk factors for the disease, while in the latter attempts are made to modify the levels of risk factors in the community as a whole. These approaches are complementary. The basis of prevention of NCDs is identification of major risk factors and their prevention and control at individual, family, community and population level. A number of risk factors common to many NCDs has been identified (Information box 1). The major risk factors for one NCD are also likely to affect one or more of the other NCDs. Additionally, some of the NCD risk factors have a tendency to cluster in individuals. A relatively limited set of risk factors accounts for a large fraction of the risk of NCDs in the population.

Box : 1. Risk factors common to major NCDs

Risk factors	Cardiovascular diseases	Diabetes	Cancer	COPD
Tobacco use	√	√	√	√
Excess alcohol	√		√	
Unhealthy diet	√	√	√	√
Physical inactivity	√	√	√	√
Obesity	√	√	√	√
Raised blood pressure	√	√		
Raised blood glucose	√	√	√	
Abnormal blood lipids	√	√	√	

The central behavioral factors for these major NCDs are physical inactivity, unhealthy diet and tobacco use. Control of these behavioral factors are well addressed in the WHO's "Global strategy on diet, physical activity and health" and Framework Convention on Tobacco Control (FCTC). Implementation of these two guiding documents will be efficient in controlling major NCDs.

NCD risk factors in Bangladesh and their control:

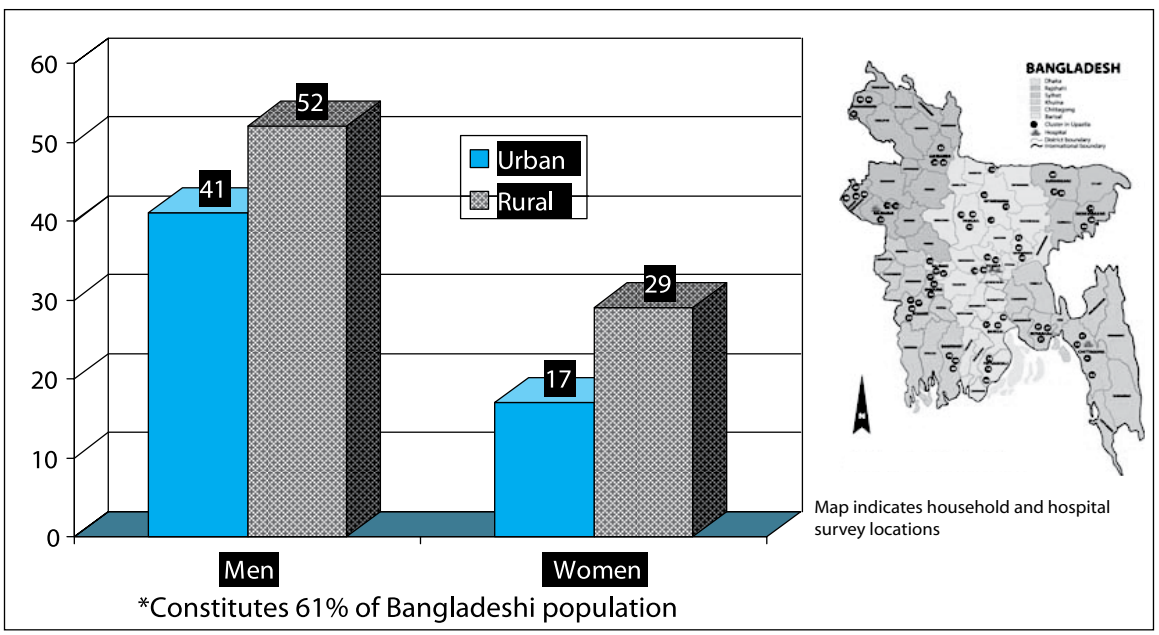
The World Health Report 2002 highlights the potentials for improving public health through measures that will reduce the prevalence of risk factors of NCDs. Comprehensive strategies for reducing the risk factors required to be based on best available scientific research and evidence incorporating both policies and actions and addressing all major causes of NCDs together.

The basis of NCDs and injury prevention is the identification of the major risk factors. The factors underlying the major NCDs are well documented but the risk factors and preventive measures of injuries and mental illnesses are yet to be determined. To control the known risk factors and identifying the un-known ones there is a need for development of a country specific action plan reflecting the country situation. Surveillance of some major risk factors such as smoking, excess alcohol drinking, obesity, physical inactivity, raised blood pressure, blood glucose, blood lipids can provide a measure of the success of interventions. Establishment of a sustainable NCD surveillance system is an important strategy for prevention and one of the key components of global effort to reduce the burden of NCDs. While there is an established system of collection and documentation of information for communicable diseases, similar system is still lacking for NCDs in Bangladesh. Most of the available data is based on research activities conducted by different institutes and also from selected community-based surveys and routine record from some of the government hospitals.

A. Use of tobacco:

In 2001, tobacco-related mortality was 4.9 million and this figure is estimated to reach to 10 million by 2020 if appropriate action is not taken. These deaths were mainly due to cardiovascular diseases, COPD and lung cancer, which are largely preventable. Most of these deaths occur in developing countries. In industrialized countries, smoking is associated with more than 90% of lung cancers in men and 70% in women. Additionally, tobacco attribute is up to 80% of COPD and 22% of CVDs.

Figure : 2. Prevalance (%) of tobaco use in man and woman aged 15 years and above* in rural and urban area.



In Bangladesh tobacco use is more common among males than females. Currently, more than half of adult males and one-third of adult females consume tobacco in any form, smoking or smokeless. A recent study conducted by WHO Bangladesh found that 41% of the major tobacco related diseases are attributable to tobacco usage (Zaman et al, 2007).

B. Diet:

Unhealthy diet is a leading cause of NCDs. Overall calorie intake at the population level in Bangladesh is not high but in certain affluent group excess energy intake is becoming evident. According to Bangladesh Bureau of Statistics (BBS 2002) per capita energy intake in Bangladesh was 2,554 Kcal in 2000-2001, which is fairly good if the large gaps in the distribution could be minimized.

Box : 2. Key recommendation for action in the area of diet

- achieve energy balance
- limit energy intake from saturated and trans fats. Substitute with healthy fat (PUFA, MUFA)
- increase consumption of fruits and vegetables and legumes, whole grain, and nuts.
- limit the intake of free (simple) sugar.
- limit salt consumption from all sources and ensure that salt is iodized.

Main problem is low intake fruits and vegetables by Bangladeshi population. While there is a steady increase in the per capita intake of rice, meat and fish from 1998 to 2001, intake of vegetables and fruits remained stable [BBS 2003]. Estimated per capita salt intake based on salt production was 15.3 gm per day in year 2001 [BBS 2003], which is three times than a person requires for physiological functions of the body. This might be an important cause of high prevalence of hypertension in Bangladesh.

Fruit and vegetables, especially fruits, intakes are very low in Bangladesh. Fruits intake should be promoted and the culture of eating 'misty' (sweets) should be replaced by fruits. Fruits and vegetables are important components of a healthy diet. Accumulating evidences suggest that they help prevent major diseases such as cardiovascular diseases and certain cancers, mainly cancer of the digestive system. There are several mechanisms by which protective effects may be mediated, involving antioxidants and other micronutrients such as flavinoids, carotenoids, vitamin C and folic acid, as well as soluble fibres.

Dietary habits are often rooted in local and regional traditions. National strategies therefore need to be culturally appropriate and able to challenge cultural influence and to respond change over time. Promoting healthy diet requires a multi-sectoral approach. There is a need for close co-operation among health, agriculture and food industry sectors. Strategies for adoption of healthy diet include:

- Marketing, advertising, sponsorship and promotion food products consistent with a healthy diet.
- Fiscal policies that can influence price through taxation, subsidies or direct pricing encouraging healthy eating.
- Development of dietary guidelines.
- Education, communication for public awareness.
- Periodic dietary survey, research and evaluation.
- Involvement of food industry in terms of
  - -Food labeling: Energy, fat, salt content (color level preferred)
  - -Reduction of salt content in processed food
  - -Decreasing use of saturated and trans fat.

C. Physical Activity:

Overall physical inactivity was estimated to cause 1.9 million deaths and 19 million DALYs globally. Physical inactivity is estimated to cause, globally, about 10-16% cases each of breast cancer, colon and rectal cancers and diabetes mellitus, and about 22% of ischaemic heart disease. Inadequate physical activity is already a global health hazard and is prevalent and rapidly increasing problem in both developed and developing countries especially among poor people and in unplanned cities. Physical activity is an important determinant of body weight. In addition, physical activity and physical fitness (which relates to the ability to perform physical activity) are important modifiers of mortality and morbidity related to overweight and obesity. The global estimate for prevalence of physical inactivity among adults is 17%. In Bangladesh, people in the rural area undergo fairly moderate physical activity because of their traditional lifestyle whereas in urban area it is very low. More that half (57%) of the rural and only 10 percent of urban adults 'usually' have moderate physical activity (Rahman m2006). Unplanned urbanization is the major reason behind this difference. Collaboration with local governments (city corporations, and municipalities, is necessary, to promote physical activity.

Box : 3. Key recommendations for action in the area of physical activity
Regular (moderate to vigorous) physical activity 5-7 days/week • 30 minutes/day (accumulated) for CVD protection • 45 minutes/day (accumulated) for fitness • 60 minutes/day (accumulated) for weight reduction

In addition to the factors mentional above there are some **special issues** related to certain NCDs; which are described below.

1. Special issues in prevention of hypertension :

Hypertension is a disease on its own as well as a risk factor for other major disease such as stroke, coronary heart disease, heart failure and renal insufficiency. It is very common in Bangladeshi people but its detection and treatment status is far from adequate. In addition to the preventive measures mentioned for cardiovascular disease, we should have intensive program for salt reduction because its consumption is very high in the country. Following activities are to be done for hypertension control:

- o Educational campaign for general people for dietary salt reduction;
- o Advocacy with the food industry to reduce salt in the processed food;

2. Special issues in prevention of rheumatic heart disease (RHD):

RHD is a distant chronic sequel of rheumatic fever (RF), which can be prevented directly by using antibiotics and indirectly by improving socio-economic conditions. Prevention of RHD includes short-term use of penicillin (and other antibiotics in penicillin sensitive subjects) for treatment of streptococcal tonsillopharyngitis to prevent an initial attack of rheumatic fever (primary prophylaxis) and prevention of a recurrent attack by long-term use of penicillin (secondary prophylaxis). WHO Expert Committee has suggested that secondary prophylaxis is the most cost-effective approach to prevention of RHD (WHO 2004). The NCCRFHD has developed following consensus statement for secondary prophylaxis:

Benzathine penicillin (0.6 mega unit for body weight <30 kg, 1.2 mega unit for ≥30 kg) or phenoxy methyl penicillin (250 mg twice daily) or erythromycin (250 mg twice daily for those allergic to penicillin) for five years from last attack or up to 22 years of age (whichever is longer). However, for RF with carditis the duration should be 10 years from last attack or up to 30 years of age (whichever is longer). RHD with or without an artificial valve (or any kind of valve surgery) needs lifelong prophylaxis.

The prophylaxis up to the age 22 years was considered due to the age at occurrence of first attack of RF in Bangladeshi people (Zaman et al, 1998). It is necessary to make penicillin available in all primary care facilities. Awareness of the people is necessary to ensure primary prophylaxis and participation of the community and schools. Training of health professionals is necessary for effective case detection, prophylaxis and referral.

3. Special issues in prevention of cancer:

Salting and pickling involve certain chemicals that are known to combine with amines in the stomach to produce nitrosamines, which are powerful carcinogenic agents. Safety of unscrupulous use of preservatives or coloring agents (non-vegetable dyes) should be seriously considered. Current practice using preservative for fish, vegetables, etc are considered to be carcinogenic. Legislation is necessary to combat this. Consumption of large volume of alcoholic beverages increases the risk of cancer of the oral cavity, pharynx, larynx, oesophagus, liver and breast. Early marriage should be discouraged and having first baby before 30 should be encouraged to control cervical cancer.

Chronic infection with Hepatitis B or C virus can cause cancer of the liver. The human papilloma viruses are now recognized as an important cause of cervical cancer. Helicobacter pylori is linked with stomach cancer. Exposure to excessive ultraviolet radiation from the sun causes all forms of skin cancer. Farmers should use mathal (a traditional farmer's cap) or hat and wear clothes to protect from direct sunlight.

4. Special issues in prevention of COPD:

Human exposure to air pollution is dominated by the indoor environment where people spend most of their time. Cooking and heating with solid fuels, such as dung, wood, agricultural residues or coal is likely to be the largest source of indoor air pollution. These fuels when used in simple cooking stoves emit substantial amounts of pollutants, including respirable particles, carbon monoxide, nitrogen and sulfur oxides and benzene. Studies have shown reasonably consistent and strong relationships between the indoor use of solid fuels and COPD. Some important work-related risk factors include pesticides, heavy metals that cause occupational asthma and COPD.

PROMOTION OF MENTAL HEALTH

Mental health is an important public health problem in Bangladesh both in urban and rural areas. Awareness about mental illness and acceptance of treatment are very low among the people. Epidemiological survey on mental health found that psychiatric disorders were more prevalent among young, women, illiterate, economically deprived group of people (Firoz et al 2005). Other factors contributing to poor mental health are unemployment, rapid urbanization, rising trends of substance abuse, perinatal birth injuries, poor maternal and infant care, over-protective child up bringing, educational stress, housing problems, etc.

Stressful life situation such as poverty and dowry were found to be associated with higher prevalence of mental disorders (Firoz et al 2005). There are pervasive negative attitudes and prejudices towards mental disorders. Families are ashamed of having member with mental disorder. This attitudes and beliefs negatively influences resource allocation for people with mental disorders and their care within family, community and national health programmes.

Community-based mental health approaches are necessary for promotion of mental health. Effective mental health promotion in a low resource setting should include the following community measures (WHO 2004):

1. Advocacy to generate public demand for mental health and to persuade all stakeholders to place a high value on mental health. Advocacy effects of alcohol abuse in an example.

2. Empowerment is the process by which groups in a community who have been traditionally disadvantaged in ways that compromise their health can overcome these barriers and can exercise all rights that are due to them, with a view to leading a full life in the best of health. An example of empowerment programmes that have had a mental health impact is the micro-credit schemes of Grameen Bank for alleviation of debt.

3. Social support strategies aim to strengthen community organizations to encourage healthy lifestyle and promote mental health. Inter-sectoral alliances proved to be effective. An example of this is the promotion of maternal health. Life skills education is the model of health promotion that seeks to teach adolescents to deal effectively with the demands and challenges of everyday life.

PREVENTION OF INJURIES

Injuries are now being recognized as a major public health problem that occurs from a complex interaction of sociological, psychological, physical and technological phenomena. Prevention of injuries would be possible by better understanding of the causes that will help us to create safer homes, environments, roads as well as to promote safe behavior of the individuals.

The government of Bangladesh recognizes injury prevention as a priority agenda that will help in alleviating poverty and in achieving the MDGs. Considering the magnitude of the injury burden, it is now on the agenda for strategic and programmatic interventions for achieving MDG by the Government and development partners, as reflected in the HNPSP and HNP Sector's Strategic Investment Plan (MOHFW 2005).

The overall objective of injury prevention and management programme of the government of Bangladesh is to reduce the deaths from injury and its severe consequences through the following activities:

- Advocacy and sensitization of policy planners, programme managers, service providers and media on magnitude and prevention of injuries;
- Develop national strategies and plan of action for injury prevention;
- Policy advocacy to develop and reinforce safety policies and regulations.
- Increase awareness and practice of specific skills and behaviors by the parents, caretakers and community on injury prevention and safety promotion;
- Increase capacity of health service providers on injury prevention and management;
- Establish safety devices to prevent and protect from the environmental hazards of injuries;
- Include injury mortality and morbidity data into national health information system.

Major injuries to be addressed through this programme are drowning, transport injuries, burn, fall, poisoning, animal bites, electrocution, machine injuries, suicides, violence and injuries during natural disasters.

PREVENTION OF BLINDNESS

Cataract is the leading cause of blindness in Bangladesh. Seventy percent of eye surgeries in Bangladesh are cataract surgeries. Eye care services are virtually non-existing at rural community level and upazila (sub-district) level. However, distribution of vitamin A capsules integrated with vaccination programme for the children had a very high level of success in preventing blindness due to vitamin A deficiency. This provides the foundation for further strengthening of primary health care for prevention of blindness (BNCB 2006).

Eye care is provided mostly in secondary level hospitals located in the district towns. However, the eye department of the district (government) general hospitals, in most cases, is not equipped with essential diagnostic and microsurgical equipment and adequate human resources. Recently, government has provided equipment for all district hospitals that include necessary equipment for eye examination and cataract operation. The government has also arranged for availability of either one senior or junior consultant (eye) for 54 district hospitals. The commitments and infrastructural changes are expected to bring a change in cataract burden also. An initiative has been undertake to establish a model upazila for primary eye care services and blindness prevention. Experiences will be scaled-up in future.

The Government of Bangladesh recognizes blindess prevention as a priority agenda. In line with vision 2020 undertaken by WHO and IAPB, strategic and programatic interventions are Included in HNPSP. Government of Bangladesh is a signatory of Vision 2020 plan (MOHFW 2005).

ROLES OF KEY PLAYERS

Partnership is an important strategy to prevent NCDs Important roles of the major partners are given below:

Role of the Government:

Government should develop efficient and integrated surveillance and prevention policies, allocate adequate resources and ensure optimum use of resources by surveillance partners. Better commitment of the Government in surveillance would ensure good quality data which provides the basis for policy makers to decide programs for prevention and control of NCDs. Government should provide more emphasis on surveillance and prevention in terms of resource allocation and involvement of its channels of communications such as radio, TV, newspapers etc. Ministry of Health and Family Welfare will be the focal ministry. Ministry of Education, Ministry of local government and Ministry of Information should have active involvement in prevention of NCDs. Government will have to identify priorities and establish sustainable infrastructures and mechanisms for surveillance, set monitoring and evaluation mechanisms and ensure utilization of data.

Autonomous organizations:

The partner autonomous bodies such as Bangabhandhu Sheikh Mujib Medical University (BSMMU) will take part actively in the surveillance of NCDs. Because this is the highest academic institute in the medical sciences it can play important role in human resource development for surveillance, developing guidelines, tools etc. Initially departments of cardiology and oncology will develop a recording and reporting system of their inpatients. They will also be involved in other activities of the BanNet according to the capacity of the organizations. Gradually other relevant departments may also participate.

Private Public Partnership (PPP)/Non governmental organizations (NGO):

The partner NGOs/PPP organizations of BanNet will be involved in the process of disease surveillance, prevention and control of NCDs. The non-profit health foundations, organizations and institutions will collect data from hospitals (if any) and also from community through periodic surveys and research studies to contribute to the surveillance system. NGOs will identify media to disseminate the network activities to create awareness among people.

World Health Organization:

In a view to develop an effective surveillance and prevention mechanism for NCD in the country, WHO will:

1. Provide strategic support and technical assistance;
2. Develop and test standardized methods and tools;
3. Prepare evidence-based guidelines and operating manuals;
4. Support development and improvement of human resource capacity;
5. Liaise BanNet with other national and regional networks;
6. Mobilize resources.

UNICEF:

UNICEF will provide technical assistance to:

1. Strengthen the community and family based injury surveillance system;
2. Develop and test standardized methods and tools for conducting facility based injury surveillance;
3. Develop networks with other national and regional organizations involved in injury surveillance and prevention.

UNFPA:

UNFPA will:

1. Support for cervical cancers screening programme based on Visual Inspection by Acetic Acid (VIA) method;
2. Promote breast cancer screening by promoting breast self examination;
3. Promote cervical and breast cancer registry in the community;

Other development partners:

NCDs have already been identified and considered as the SIP and HNPSP priorities. Therefore international funding agencies such as World Bank, JICA, Asian Development Bank, DFID may show their interest to invest in this sector.

BANGLADESH NETWORK FOR NON-COMMUNICABLE DISEASES SURVEILLANCE AND PREVENTION (BanNet)

BanNet is the forum for active collaboration of organizations/institutes that aims at promoting and conducting systematic collection, compilation and dissemination of information on NCD surveillance. Its objectives are:

1. To have synergic and integrated activities for collecting core epidemiological data on NCDs and their risk factors.
2. To develop mechanisms and methods for collection of data on NCDs.
3. To improve dissemination of information and experience on issues related to NCDs surveillance.
4. To facilitate utilization of the information for prevention and control of NCDs.
5. To prevent NCDs by promoting life course perspective, advocating policy development and promoting multisectoral intervention and empowering people.

Membership is open to any non-profit organizations working in NCD surveillance and prevention. A format has been developed for membership application. Application has to be submitted to the working committee (see below)

The BanNet operates mainly through the following activities:

a. Meeting of the members:

The members of the network will periodically meet to provide and exchange information and experience and by organizing a national workshop involving all members of the network.

b. Communications through website, newsletters, etc:

Development on information technology accelerates efficiency and pace of activity of an organization. The network should optimize utilization of recent technology such as internet. This is to facilitate communication between members of the network. In this regard each network member should have modern infrastructure for internet connectivity. The members of the network will be able to communicate more efficiently through internet. The website of the Network can also be linked to regional and global websites on NCDs to facilitate members of the network in receiving recent information and development on the NCDs surveillance.

c. Generation of information:

1. Hospital based surveillance:

Each member of the Network will develop their reporting form but there should be conformity within the specialty. They will hold dissemination seminar at least once a year. They may have their own newsletters and annual reports of activity.

2. Community-based surveillance:

Alliance for community-based surveillance (ACS) will conduct periodic population based surveys on NCDs and their risk factors. Initiate Registries depending on their domain of work.

Management Committees of BanNet:

The organizational structure of the surveillance and prevention will be as follows:

a. National Steering Committee:

A national steering committee will be formed under the leadership Honorable Minister for Ministry of Health and Family Welfare and Secretary, MOHFW will be the member secretary. The members will be drawn from Additional Secretary, MOHFW, Director General of Health Services, DGFP, ADG (Planning and Development) and Line Director (NCD & OPHI), Joint Secretary (Public Health & WHO), relevant development partners, UN agencies, subject specialists, Director MIS, Director Disease Control, Director of the Institute of Epidemiology, Disease Control and Research (IEDCR), Director BHE, relevant institutes, and professional associations etc. It will:

1. Formulate policy and give guidance for changes in the strategic plan.
2. Identify and mobilize potential partners from various sectors of government, non-government, professional organizations, legislative bodies, and other private sector organizations such as health related industries.
3. Take appropriate actions for development, amendment, implementation of legislations and regulations.

b. Working committee:

DGHS has formed a working committee headed by Director (Disease Control) and member drawn from different subject specialties, and DPM (NCD) which will perform functions of the network. It will follow the guidelines of national steering committee and will be closely monitored by the core committee. It will:

1. Develop necessary documents for BanNet.
2. Facilitate regular meetings of BanNet.
3. Make recent information available to BanNet members.
4. Document and monitor the activities of the network members.
5. Evaluate the activities performed by the BanNet and ACS.
6. Suggest changes in the policy and plan of action to the national Committee.
7. Evaluate the membership applications for BanNet and ACS.

Membership of BanNet and ACS

Current members of BanNet as of November 2007

1. Ministry of Health and Family Welfare (National Tobacco Control Cell)
2. Bangabandhu Sheikh Mujib Medical University, Dhaka (Cardiology, Neurology, Oncology).
3. Disease Control Department, DGHS, Dhaka
4. Bureau of Health Education, DGHS, Dhaka
5. National Institute for Traumatology and Orthopedic Rehabilitation, Dhaka
6. National Institute of Cancer Research & Hospital, Dhaka
7. Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders, Dhaka
8. National Institute of Cardiovascular Diseases, Dhaka
9. National Heart Foundation Hospital & Research Institute, Dhaka
10. Zia Heart Foundation Hospital and Research Centre, Dinajpur
11. National Institute of Diseases of Chest & Hospital, Dhaka
12. National Centre for Control of Rheumatic Fever & Heart Disease, Dhaka.
13. National Institute of Mental Health, Dhaka.
14. National Institute of Opthalmology, Dhaka
15. Institute of Public Health Nutrition, Dhaka
16. Bangladesh Cancer Foundation, Dhaka
17. Centre for Injury Prevention and Research, Bangladesh
18. Ekhlaspur Centre of Health (ECOH), Chandpur
19. Ahsania Mission Cancer Hospital, Dhaka

Current ACS members as of November 2007

1. Bangladesh Institute of Research and Rehabilitation in Diabetes, Endocrine and Metabolic Disorders, Dhaka
2. National Heart Foundation Hospital & Research Institute, Dhaka
3. Bangladesh Cancer Foundation, Dhaka
4. Zia Heart Foundation Hospital and Research Centre, Dinajpur
5. Ekhlaspur Centre of Health (ECOH), Chandpur
6. Centre for Injury Prevention and Research, Bangladesh

COMMON FRAMEWORK FOR ACTION

The strategic plan for surveillance and prevention of NCDs in Bangladesh

Action Agenda Items	Process Indicators	Output Indicators	Outcome Indicators
1. Surveillance			
Development and maintenance of a surveillance system incorporating programme monitoring and evaluation components.	Development of methodology and tools for a common population-based NCD surveillance system. Building technical capacity at various levels. Development of methodologies for research on further improvement of the surveillance.	Reports and publications produced. Results/materials disseminated to policy makers, public, media and professional groups.	Decisions made using surveillance information generated. Number of medial college, district and upazila hospitals regularly contributing to the national facility based surveillance. Number of population sites from which surveillance data are available.
2. Health Promotion and prevention of NCDs			
Development of evidence guided behavior change communication strategy for NCD, and its implementation at national and community levels	Baseline assessment of knowledge level, practices and perceptions. Constitution of multidisciplinary teams consisting of members from the media, public health specialists national programme managers, NGOs, community activists, local opinion leaders, etc. Development mass media and community intervention details Development of a highly visible behavioral change communication plan incorporating strong social marketing approaches. Assessment of community needs.	Implementation of a highly visible behavior change communication plan incorporating a strong social marketing approach. Integration of all chronic NCD domains in the mutually reinforcing plan. Number of coalitions built. Tools of intervention developed. Number of surveys done.	Change in awareness level on NCDs. Proportion of motor bikers using helmet. Proportion of individuals aware of major NCD risks. Proportion of inactive persons. Proportion of individuals eating less than 5 servings a day of fruits and vegetables. Mean BMI, waist circumference, blood pressure and glucose level. Proportion of individuals with obesity, diabetes and hypertension. Proportion of individuals screened for high blood pressure.

			Proportion of people using tobacco. Proportion people with hypertension and diabetes with adequate control
3. Orientation of the health services			
Development and implementation of a sustainable, scientifically valid and resource-sensitive CME programme for professional education and involvement of all categories of healthcare providers in the prevention of NCDs and its integration in health services. Ensuring availability of essential drugs at the primary healthcare level.	Workshops and consultative deliberations to include the prevention of NCDs in a comprehensive CME programme for all categories of healthcare providers. Development of sustainable, scientifically valid and resource-sensitive CME programmes for training all categories of healthcare providers. Development of educational tools which incorporate resource-sensitive risk management and assessment algorithms. Inclusion of health promotion and disease prevention theory and practice in medical and paramedical curricula.	Number of health professionals with access to course/curricula with modules for health promotion and disease prevention. Existence of scientifically valid and resource-sensitive training tools. Number of trained professionals. Adoption of preventive practices by healthcare providers at community, district, national health promotion activities. Availability of drugs essential for the prevention of NCDs at all levels of healthcare. Number of ECG machine and colorimeter with reagents available in upazila health complexes	Proportion of healthcare providers who screen at-risk individuals for hypertension and diabetes. Proportion of healthcare providers who screen for breast cancer. Proportion of healthcare providers prescribing drugs which are critical in primary and secondary prevention of NCDs. Number of upazila in which community-based mental health services started. Number of upazila in which model primary eye care services started. Change in awareness and practices of healthcare providers. Proportion of upazila health complex having dedicated health promotional activities.
4. Legislative and/or regulatory measures			
Enactment, amendment and enforcement of laws and regulations in tobacco, mental health, food standards, vehicles (locally manufactured) and road safety.	Activities to garner public support for legislation/ regulation essential for prevention and control of NCDs Media accounts highlighting the need for legislative and regulatory measures Multi-stakeholder dialogue between relevant ministries, economists, multilateral donors and bilateral lending agencies	Development of national standards and guidelines for care and treatment of mentally ill patients. Number of community-based mental health services established. Mental Health Ordinance enacted.	New relevant legislation/regulations appeared mental health, food standards, vehicles (locally manufactured) and road safety. Amendment of existing laws such as tobacco control law.

	Proposals to legislators for enacting/amending law(s). Establishment of task forces and working groups to support parliamentary committees. Legislative and/of regulatory measures relating to training of drivers/licensing.	Food standard legislation enacted. Vehicle safety law enacted. Amendment of tobacco control law	Legislation/regulations enforced Public consumer support for legislation/regulations Decline in per capita consumption of tobacco
5. Research			
Policy and operational research of local relevance in order to examine tobacco tax policies, marketing and advertising strategies. Operational research in controlling road traffic injury. Periodic research on burden of NCDs and their risk factor levels.	Development of tools and course to enhance research skills. Training courses on epidemiology and prevention of NCDs to enhance skills	Publications prepared through acquisition of data. Information provided to media. Presentations and seminars for public, health professionals and policy makers.	Publications in the form of reports, articles and infobases on NCDs available. Research information used for decision making. Feedback of information to health authorities.

PLAN OF ACTIONS FOR KEY ACTIVITIES, 2006-2010

(Note: The process was started in 2004 and some of the activities have actually started before 2006)

1: Hospital-based surveillance				
Activity	**Time Frame**	**Facilities/areas**	**Responsible persons**	**Proposed main development partners**
a. Inpatient NCD surveillance in specialized institute (monthly reporting of morbidity and mortality)	2006 2010	1. NICVD 2. NITOR 3. NICRH 4. ZHFH 5. NHFH 6. BIRDEM 7. BSMMU (Oncology, Cardiology) 8. NIDCH 9. NIMH 10. NIO	Director Disease Control (Focal Point)	WHO
b. Inpatient surveillance in medical college, district and upazila hospitals *(integrated)*	2007 2010	1. Sher-E-Bangla Medical College Hospital. 2. M A G Osmani Medical College Hospital. 3. Chittagong Medical College Hospital	do	WHO
	2008 2010	District Hospitals in six divisions: 1. Nilphamari 2. Jessore 3. Barisal 4. Chittagong 5. Sylhet 6. Gajipur		
	2008 2010	Six Upazila Health Complexes in above districts: 1. Nilphamari Sadar 2. Sarsha 3. Bakherganj 4. Patia 5. Golapganj 6. Kaliakoir		

2. Review meetings	2006 2010	BanNet Secretariat	do	WHO
3. Publication of newsletters, reports	2006 2010	BanNet Secretariat	Director Disease Control in collaboration with MIS, BHE	WHO
4. Capacity building of the human resources	2006 2010	BanNet Secretariat	Director Disease Control	WHO, UNICEF, UNFPA
5. Strengthening of IT for improvement of recording and reporting	2006 2010	BanNet Secretariat	Director Disease Control (Focal Point)	WHO
2: Community-based surveillance of major NCDs and their risk factors				
1. WHO STEPS survey	2006 2010	Selected areas in six divisions of the country stratified into rural and urban locations	Alliance for Community-based Surveillance of NCDs (ACS)	WHO, UNICEF (for injury)
2. Establishment of disease (such as cancer, stroke) registries in communities	2007 2010	do	do	WHO
3. Feed data to the NCD InfoBase	2007 2010	DGHS, Dhaka	do	WHO
4. Organizing teaching seminar on epidemiology and prevention of NCDs	2007 2010	Dhaka or any other place	Ban Net	WHO
5. Implementation of "Demonstration Projects" on NCDs	2007 2010	Healthy settings in various cities/ municipalities	ACS, Healthy Setting	WHO
6. Capacity building of the human resources of ACS	2006 2010	Dhaka	ACS secretariat	WHO
7. Strengthening of IT for improvement of recording and reporting	2006 2010	Any place where ACS member organization is located	ACS secretariat	WHO, UNFPA, UNICEF

3 : Tobacco control				
Activity	***Time Frame***	***Responsible person/organization***	***National partners for collaboration***	***Proposed main Development partners***
1. Establish a Tobacco Control Cell in the Ministry of Health and Family Welfare	2007	Programme Manager (Tobacco Control)	NGOs; civil society; relevant ministries	WHO
2. Establish a mechanism for monitoring and implementation of the tobacco control law	2006 2010	do	Ministry of Home Affairs, NGOs; district administration	WHO
3. Capacity building workshops for relevant sectors, departments, professional groups, NGOs	2006 2010	do	Related Ministries; NGOs	WHO
4. Advocay for a policy for an increase of tobacco tax in every fiscal budget.	2006 2010	do	Ministry of Finance; Civil Societies; NGOs	WHO
5. Develop policies to support tobacco farmers in switching over to other cash crops	2006 2010	do	Ministry of Agriculture; Ministry of Finance	WHO, FAO
6. Establish community-based tobacco cessation programme by NGOs	2007 2010	do	NGOs	WHO
7. Develop and implement sustainable national IEC strategies to inform and educate general people	2006 2010	do	Ministry of Information; NGO	WHO
8. Include tobacco control in the school curriculum	2007 2010	do	Ministry of Education; NCTB	WHO, UNICEF
9. Include tobacco control in the curriculum for training of youth		do	Ministry of Youth and Sports	WHO
10. Develop a comprehensive updated national database by researches on issues related to tobacco control	2006 2010	do	Bangladesh Medical Research Council	WHO
11. Advocacy for provision of allocating earmarked fund from national health budget for tobacco control.	2006 2010	do	Ministry of Finance	WHO
12. Develop and strengthen a tobacco control Network	2006 2010	do	NGOs; Cancer Institute, ACS	WHO
13. Publication and updating of national strategic plan for tobacco control	2007 2010	do	do	WHO
14. Promote partnership with Healthy settings, PHC intensified disticts, other Government/UN agencies	2007 2010	do	do	WHO

4: Promotion of healthy dietary habit				
1. Formulate and implement policy on food labeling, salt, fat, etc.	2008 2009	Institute of Public Health Nutrition	Institute of Nutrition and Food Science (DU); Dept of Nutrition; NIPSOM	WHO
2. Awareness on healthy diet, especially on promotion of fruits and vegetables and restriction of salty, sugary and fatty (saturated and trans) food.	2009 2010	Institute of Public Health Nutrition	Bureau of Health Education; Dept of Health Promotion and Education; NIPSOM; Ministry of Information; Ministry of Education	WHO
3. Conduct research on diet, dietary habit, and nutritional status and food	2006 2008	Institute of Public Health Nutrition	ACS; NIPSOM	WHO
4. Advocacy meetings with food industry for food labeling, fat contents, advertisement, preservatives, etc	2008 2010	Institute of Public Health Nutrition	BanNet; Institute of Nutrition and Food Science; Dhaka University; Dept of Nutrition; NIPSOM	WHO, FAO
5. Advocacy for appropriate taxing of beverages so that they do not become cheaper than their health equivalents (e.g., carbonated drinks compared with milk)	2008 2010	Institute of Public Health Nutrition	BanNet; Institute of Nutrition and Food Science, Dhaka University; Dept of Nutrition; NIPSOM	WHO, FAO
6. Advocacy for inclusion of diet in under-graduate medical education	2008 2010	Institute of Public Health Nutrition	BanNet; Institute of Nutrition and Food Science; Dept of Nutrition; NIPSOM; Public universities.	WHO, FAO
5: Promotion of physical activity				
1. Develop a conceptual framework on promotion of physical activities	2008	Bureau of Health Education	NHF; BIRDEM; Ministry of Youth and Sports; LGRD	WHO World Bank, ADB

2. Advocacy for curricula development for primary and secondary schools	2008 2009	Bureau of Health Education	Ministry of Education; NCTB; Department of Health Education; NIPSOM	UNICEF WHO
3. Facilitate educational institutes, training institutes and human resource development institutes / organizations in promoting physical activity in their programs	2008 2010	Bureau of Health Education	Ministry of Education; Ministry of Youth and Sports	WHO World Bank ADB
4. Advocacy for promotion of bicycle in both urban and rural areas	2008 2010	Bureau of Health Education	Ministry of Communication; City Corporation; Municipalities; FBCCI	WHO World Bank ADB
5. Resource mobilization to create infrastructure for making physical activity feasible	2008 2010	Bureau of Health Education	Dhaka City Corporation; Ministry of Education	WHO World Bank ADB
6. Advocacy for keeping footpaths free for walking	2008 2010	Bureau of Health Education	City Corporations; Municipalities; Healthy Settings	WHO World Bank ADB
7. Awareness creation through mass media and community organizations	2008 2010	Bureau of Health Education	City Corporations; Municipalities; Healthy Settings; Ministry of Information	WHO UNICEF
8. Networking with Healthy Settings	2007 2010	Bureau of Health Education	City Corporations; Municipalities;	WHO; World Bank ADB
6. Promotion of mental health				
1. Periodic surveys to determine burden and trend in mental health	2006 2010	Programme Manager (Mental Health)	Bangladesh Association of Psychiatrists	WHO
2. Establishment and sustenance of community-based approach to mental health in selected model upazila	2007 2009	do	Civil Surgeons of respective district, Upazila health and family planing office	WHO
3. Advocay for introduction of mental health topics in school curriculum	2010	do	Ministry of Education	UNICEF WHO

4. Integration of mental health programme with existing school health programme	2010	do	Ministry of Education; Directorate of Health	WHO
5. Education of community people by using various approches	2006 2010	do	Ministry of Information	WHO
6. Identification of treatment gaps in epilepsy and neurophychiatric disorders, and strengthening of referral	2006 2009	do	Bangladesh Association of Psychiatrists	WHO
7. Training of opinion leaders, faith healers on mental health	2006 2009	do	Bangladesh Association of Psychiatrists	WHO
8. Advocacy meetings with relevant ministries, departments to enact a Mental Health Act	2006 2010	do	Bangladesh Association of Psychiatrists; Ministry of Law, Ministry of Social Welfare	WHO
9. Advocacy (involving community organizations) for creating public demand for substance abuse prevention, empowerment of socially deprived group and strengthen social support.	2006 2010	do	Bangladesh Association of Psychiatrists; Bangladesh Association of Clinical Psychologists	WHO
7. Injury prevention				
1. Research on major injuries to identify the risks, hazards and preventive measures	2006 2007	Programme Manager (Injury Prevention)	Bangladesh Medical Research Council; CIPRB	UNICEF, WHO
2. Advocacy for inclusion of injury prevention in the school curricula	2007 2010	Programme Manager (Injury Prevention)	Ministry of Education, Ministry of Primary Education; CIPRB	UNICEF, WHO TASC
3. Policy advocacy and other measures to ensure school safety	2008 2010	Programme Manager (Injury Prevention)	Ministry of Education; Ministry of Primary Education; CIPRB	WHO, UNICEF TASC

4. Awareness creation through various media	2006 2010	Programme Manager (Injury Prevention)	Ministry of Information; CIPRB	WHO, UNICEF, TASC
5. Development of training modules on pre-hospital care and training community groups on pre-hospital care	2006 2010	Programme Manager (Injury Prevention)	CIPRB Professional bodies	WHO, UNICEF, TASC
6. Capacity building of primary health care providers on injury prevention by using TEACH-VIP	2006 2008	Programme Manager (Injury Prevention)	CIPRB Professional bodies	WHO, UNICEF, TASC
7. Networking with relevant ministries particularly the Road Safety Cell of Communication Ministry and support the implementation of the National Road Safety Strategic Action Plan	2006 2010	Programme Manager (Injury Prevention)	Relevant ministries; BUET; CIPRB; CRP	WHO, UNICEF, TASC
8. Prevention of avoidable blindness				
1. Formation of a national and district level Vision 2020 Forum	2006 2007	Programme Manager (Blindness Prevention)	BMA; local government; social welfare; NGOs	WHO, ORBIS, Sight Savers
2. Policy advocacy a legislation for effective blindness prevention	2007 2010	Programme Manager (Blindness Prevention)	Ministry of Law; Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers
3. Organize and support workshop/round-tables on Vision 2020 in district and upazila levels.	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers
4. Awareness creation through various media to prevent avoidable blindness including observance of World Sight Day.	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB Ministry of Information	WHO, ORBIS, Sight Savers
5. Advocacy for inclusion of ophthalmic supplies and IOLs in MSR budget	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers

6. Develop a model primary eye care model with public health orientation in selected upazila	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers
7. Develop capacity of the ophthalmologic manpower	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers
8. Sustain adequate supply of vitamin A capsule at all health care level	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers UNICEF
9. School vision testing in schools	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB Ministry of Education	WHO, ORBIS, Sight Savers UNICEF
10. Refraction services developed in all government district hospitals, relevant NGO, private hospitals and model UHCs	2006 2010	Programme Manager (Blindness Prevention)	Bangladesh Ophthalmolocial Society; BNSB	WHO, ORBIS, Sight Savers
9. Capacity building for health care services for NCDs				
1. Workshops and CME programme of NCDs for physicians, nurses and other health workers	2006 2010	Institutes/tertiary/secondary and primary care hospitals	Respective program managers/ directors	WHO
2. Organizing scientific conferences of various NCDs to exchange views and knowledge	2006 2010	Institutes/professional organizations	Respective program managers/ directors	WHO
3. Development and dissemination of treatment guidelines	2006 2010	Institutes/professional organizations	Respective program managers/ directors	WHO
4. Training of physicians for early detection of NCDs			Respective program managers/ directors	WHO
5. Strengthening of laboratory facilities for basic screening of selected NCDs at secondary and primary health care level				WHO
6. Strengthening of health care facility based promotion and prevention activities especially for risk reduction.				WHO

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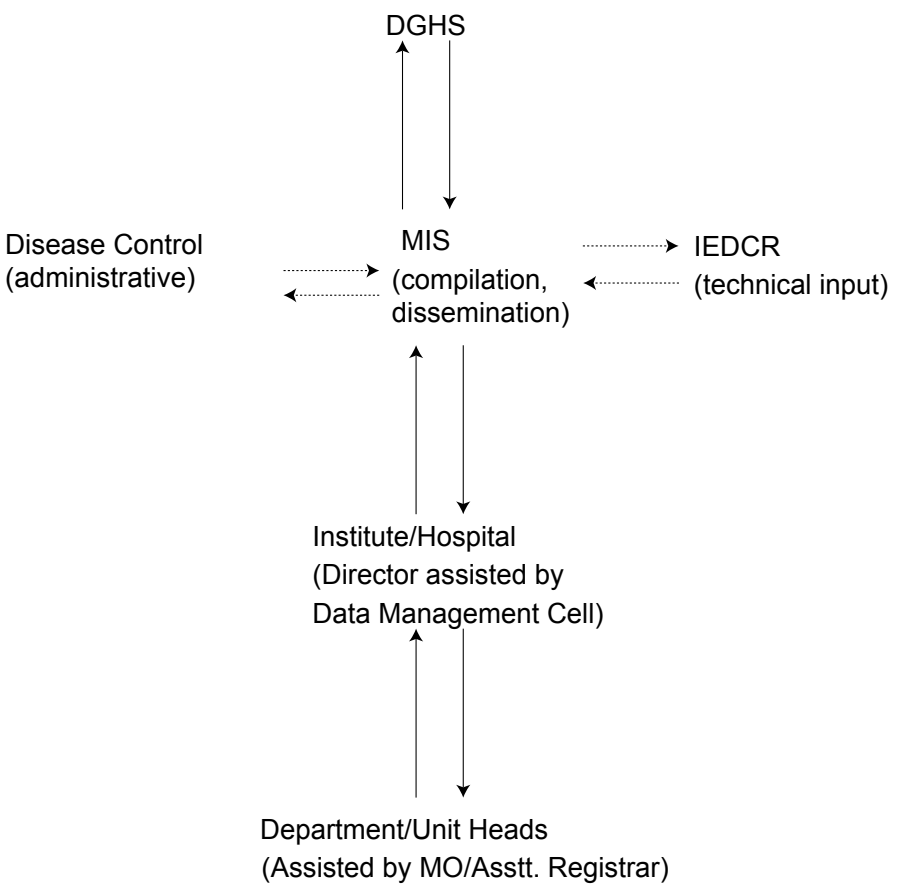
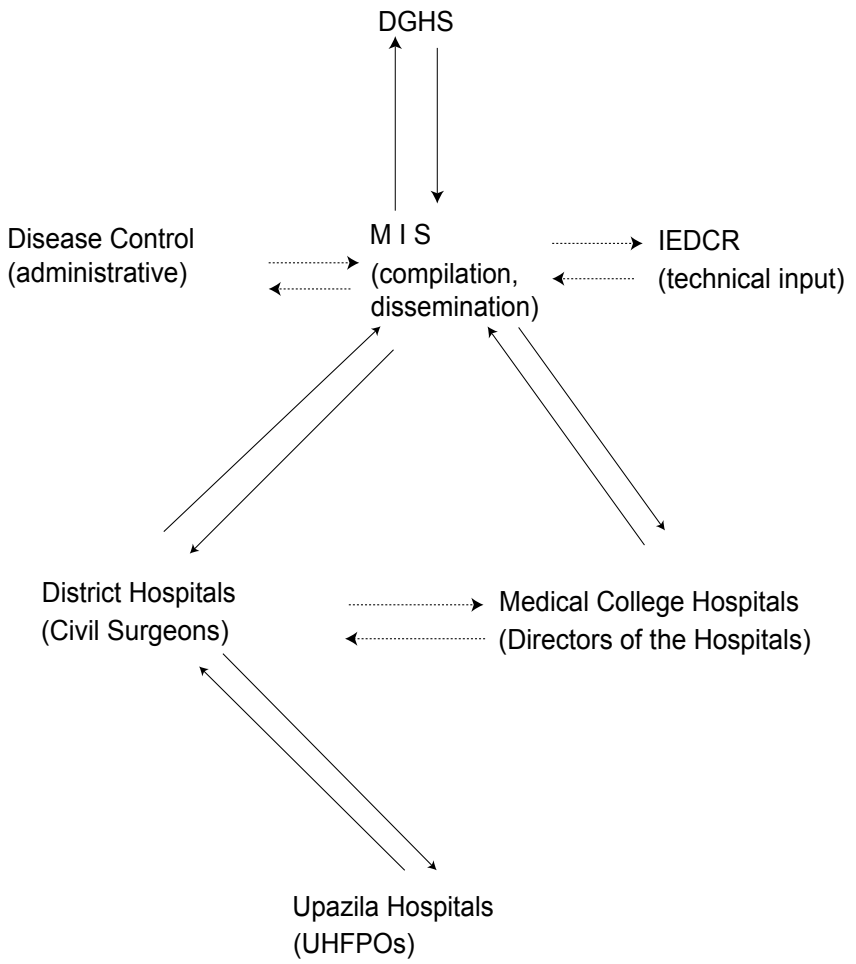
Appendix - A1

Flowchart for Inpatient NCD Surveillance Data from Specialized Institutes/Hospitals



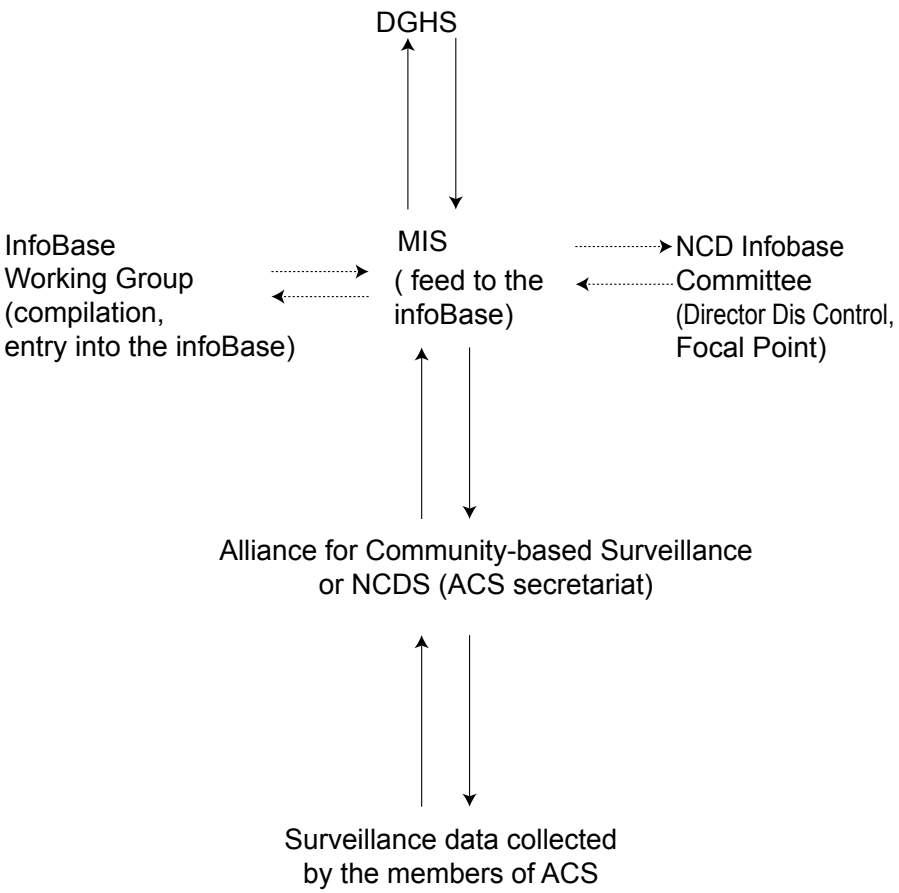
Appendix - A2

Flowchart for Integrated Facility-based Inpatient Surveillance Data



Appendix - A3

Flowchart for Community-based NCD Surveillance Data



Appendix - B

WORKING COMMITTEE

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Appendix - C

CHRONOLOGY OF DEVELOPMENT PROCESS OF THIS DOCUMENT

Date	Venue	No. of participants	Participants
15-16 Dec 2004	Zia Heart Foundation and Research Institute, Dinajpur	17	PMs, Working group
22 March 2005	National Heart Foundation Hospital and Research Institute	32	PMs, Working group
29 March 2005	National Institute of Cancer Research & Hospital	23	PMs, Working group
22 August 2005	Directorate General of Health Services	23	PMs, Working group
04 May 2006 Approval Meeting	Ministry of Health and Family Welfare	34	Minister of Health and Family Welfare, DGHS, PMs, Working group, Development partners
07 August 2006 Revision Meeting	Directorate General of Health Services	19	DGHS, PMs, Working group, Development partners