

# Strategic Plan for Surveillance and Prevention of Non Communicable Diseases in Bangladesh 2011-2015



Directorate General of Health Services  
Ministry of Health and Family Welfare

With technical assistance from



**World Health  
Organization**

Country Office for Bangladesh

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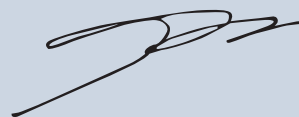
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## Preface

Bangladesh has been experiencing epidemiological transition from communicable disease to non communicable disease. This is the right time to align are to 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 2007-2010 was 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 year strategic plan for surveillance and prevention of non-communicable diseases has been updated on the basis of non-communicable disease trends which have been experienced in recent time throughout the country. This document provides guidance to implement interventions for controlling and preventing emerging non-communicable diseases. This updated strategic plan will be the main tool and background document for taking control measures against non-communicable diseases.

Finally, the Government expresses sincere appreciation to the WHO for highlighting this issue once again and providing technical assistance to develop such a reference document.



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## List of Acronyms and Abbreviations

ACS	Alliance for Community Based surveillance
BanNet	Bangladesh Network for Non-Communicable Disease Surveillance and Prevention
BIRDEM	Bangladesh Institute of Research, Rehabilitation in Diabetes, Endocrine and Metabolic Disorders
BSMU	Banga Bandhu Sheikh Mujib Medical University
COPD	Chronic Obstructive Pulmonary Diseases
DGHS	Directorate General of Health Services
HNPSP	Health Nutrition Population Sector Plan
IEDCR	Institute of Epidemiology, Disease Control and Research
IHD	Ischaemic 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
PRSP	Poverty Reduction Strategy Paper
STEPS	STEPwise Surveillance

# Executive summary

Bangladesh is facing a dual burden, with a huge load of infectious diseases and an increasing burden due to NCDs, which lead the Government to update the strategic plan to combat NCDs in the country. Unidirectional globalization and rapid unplanned urbanization serve as conduits for the promotion of unhealthy lifestyles and environmental changes. These common risk factors give rise to intermediate risk factors such as raised blood pressure, raised blood glucose, unfavourable lipid profiles, obesity and impaired lung function. In turn, the intermediate risk factors predispose individuals to the "fatal four" - cardiovascular disease (heart disease and stroke), cancer, chronic respiratory disease and diabetes.

NCDs have further burdened the already strained health system and inflict great cost on the society. Economic growth has a number of key determinants and precursors, of which health is a significant field. In developing countries like Bangladesh, NCDs have historically not received adequate attention from policy makers, development partners, researchers and academicians.

Unplanned rapid urbanization, unfettered tobacco, food and beverage industries at the backdrop of widespread ignorance are the breeding ground of these diseases. Unfortunately, many of these factors are beyond direct control of the health sector alone; other major problems lie in the difficulty in translation of NCD strategies into activities. Appropriate strategies under high level political commitment and necessary funding to facilitate the prevention and control 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 present Strategic Plan for Surveillance and Prevention of NCDs has been developed as process of upgradation of the previous one (Strategic Plan for Surveillance and Prevention of NCDs 2007-2010) 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 public health configuration and influence healthcare systems towards a more preventive orientation.

Major focus of the strategic plan of action is to enable practical, cost-effective and evidence based interventions that can be adopted to achieve a reduction in NCD risk factor prevalence, and NCD morbidity and mortality. It aimed at reducing NCD death rate by 2% per annum in alignment with the global target. In the document strategies enshrined three major areas for initiating action.

**Surveillance of NCDs and their risk factors:** Guiding principles for NCD Surveillance strategy development was generation of evidence, utilization of the evidence for the policy and translation of policy in the activity. Through continuous and effective data generation, identification of major NCDs as well as determination of the magnitude of burden of major NCDs and their risk factors is considered a key element for surveillance. Considerations that guide the inclusion of these risk factors include the significance of the risk factors for public health. The work organization was arranged, formulating a strategic framework for NCD surveillance with initial focus on risk factors.

**Health promotion and prevention of NCDs:** Health promotion is the process of enabling people to increase control over the determinants of health and thereby improve their health. It is a comprehensive social and political process that includes increasing individual and collective participation in health action. 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. The framework for health promotion targeted at building healthy public policies, creating supportive environments for health, strengthening community actions, and capacity building, orienting health services according to people's need and advocacy and community empowerment for prevention of NCDs and promotion of healthy lifestyle.

**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. Hence, strategies for better management of NCDs are enshrined in the document. Considering the limited resources and the characteristics of NCD services, the strategy is directed to improve the professionalism of health care providers, ensuring basic medicines and diagnostic facilities at primary care level. Key strategies include, development of competency-based training for health care providers in dealing with NCD care.

Implementation of such plan of action will lead to generation of new information for improving the performance of the health system. Multi-sectoral and multidisciplinary participatory actions that involve relevant sectors considering the long term perspectives as well as recognizing the multifaceted interaction between personal choices, social norms, and economic and environmental factors will be the key for implementation of the action points.



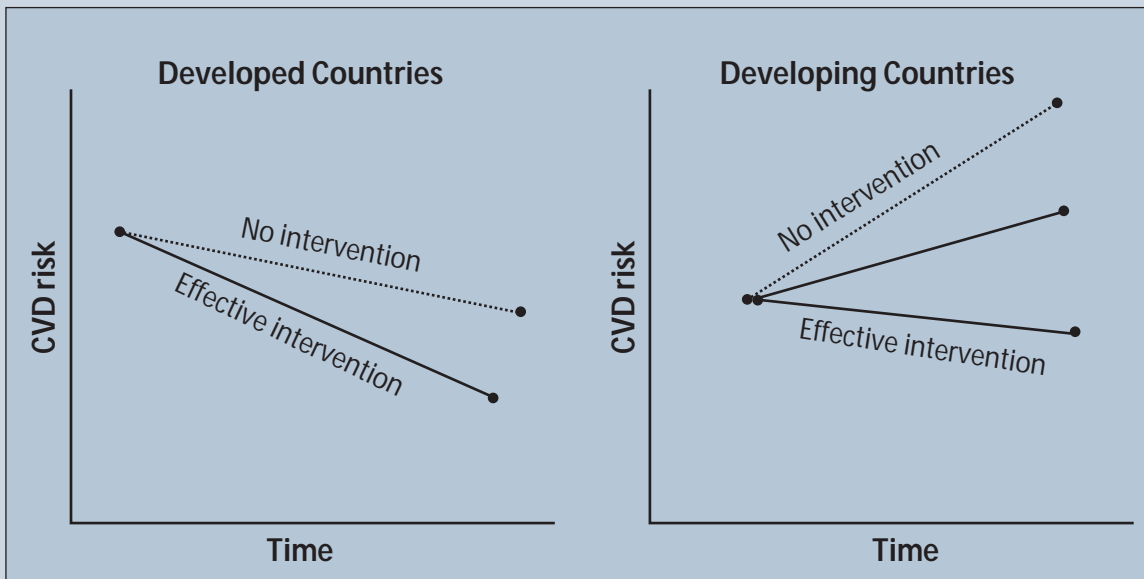
# Introduction

By convention non-communicable diseases (NCDs) are cardiovascular disease, diabetes, chronic respiratory disease and certain cancers. NCDs evolve from the complex interaction of multiple determinants and risk factors. Interventions need to address these determinants and risk factors simultaneously, integrating policy and public health interventions that target entire populations and communities, as well as high-risk individuals and those with early or established disease.

Population ageing has altered the nature of death and disease. Success in increasing life expectancy has ensured that a significant proportion of the population manage to survive the risks of dying during the perinatal period and early childhood, and has allowed chronic NCDs to overtake communicable diseases as the major cause of mortality and morbidity. While not discounting the inevitability of death, the evidence indicates that non-communicable diseases often cause death prematurely, usually after years of increasing disability and ill health.<sup>1</sup> Objective measurement of burden of disease and death following standard definitions are needed.

Common risk factors underlie NCDs. An estimated 80% of premature heart disease, stroke and type 2 diabetes, and 40% of cancer, could be avoided through healthy diet, regular physical activity, and avoidance of tobacco use.<sup>2</sup> Globalization and urbanization serve as conduits for the promotion of unhealthy lifestyles (e.g. tobacco and alcohol use, unhealthy diets, and physical inactivity) and environmental changes (e.g. indoor and outdoor air pollution). These common risk factors give rise to intermediate risk factors such as raised blood pressure, raised blood glucose, unfavourable lipid profiles, obesity and impaired lung function. In turn, the intermediate risk factors predispose individuals to the "fatal four": cardiovascular disease (heart disease and stroke), cancer, chronic respiratory disease and diabetes.<sup>3</sup>

The health care costs related to NCDs are significant. For the socio-economically disadvantaged, the out-of-pocket expenditure for NCDs can be catastrophic. On top of the direct health care costs, the economic impact of early death and disability, i.e. before age 60, is potentially devastating. NCDs contribute to the nation's burden of poverty; retard national development and can widen the health inequities within country. Unfortunately, investment in NCD prevention and control remains inadequate despite the growing burden and evidence for effective interventions.



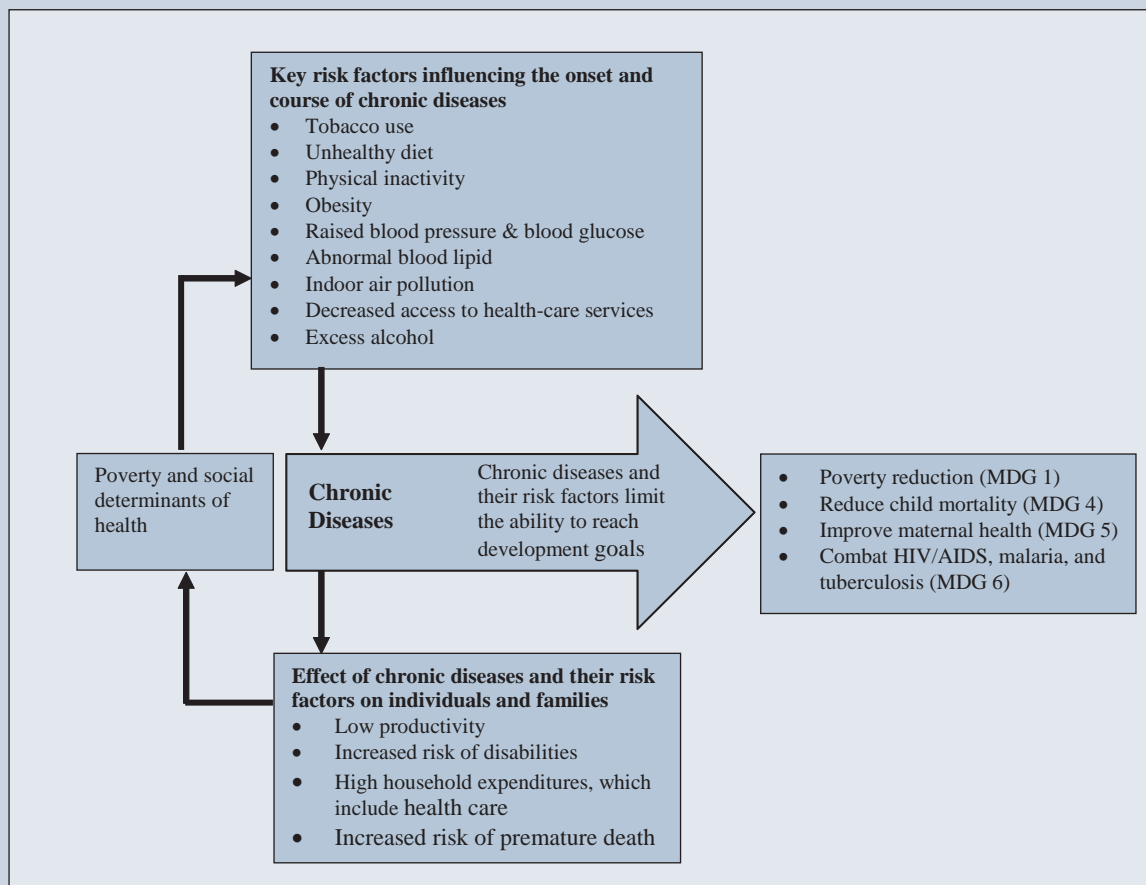
**Figure note:** In developing country with increasing incidence of coronary heart disease, interventions are likely to be effective as opposed to developed countries where interventions were carried when a decline in secular trends were observed.

Multisectoral approaches are the key to address the broad determinants of NCDs. Government leadership and political commitment is essential to coordinate the multisectoral response to the NCD burden. For example, opening up global trade, the importation and use of unhealthy commodities such as tobacco, alcohol and unhealthy food is an increasing concern. Effective NCD prevention and control require engaging and working with multiple sectors. Comprehensive approaches that include both health "whole-of-government" and "whole of-society" interventions are needed to achieve measurable successes in controlling and preventing NCDs. This whole-of-government approach is embedded in existing guidelines and regulatory frameworks relevant to NCDs, such as the WHO Framework Convention on Tobacco Control<sup>4</sup> and the Global Strategy on Diet, Physical Activity and Health.<sup>5</sup>

A whole-of-society approach should complement the whole-of-government approach to NCD prevention and control. Population-based interventions for behavior change augment the impact of interventions that shape the regulatory environment, and vice-versa. Leadership development is crucial at all levels of society, and community mobilization must accompany political advocacy to effectively institutionalize healthy behaviours. Creative multisectoral partnerships should be explored to facilitate collaborative activities. Cultural relevance and sensitivity, as well as a people-centered perspective, will be important, as interventions need to be adapted to local cultures and traditions.

UN resolutions recognized that NCDs in developing countries pose a major threat to development and called for urgent action to implement the WHO Action Plan for the Global Strategy for the Prevention and Control of NCDs.<sup>6,7</sup> Bangladesh is one of the 17 countries (out of 23 low and middle income countries surveyed in 2010) reporting to the WHO having an integrated NCD policy, strategy or action plan in place and operational. Current effort is to bring it forward, revision of the strategy according to the need of the time.

NCD prevention and control is linked with broader development agenda:8, Which is depicted in fig 2 below:



**Figure 2 :** Inter-relationship between chronic disease poverty and development.



## Current NCD situation in Bangladesh

The overall mortality rate in Bangladesh has decreased significantly over the couple of decades. But deaths due to chronic diseases are increasing in an alarming rate. Underlying risk factors for causing these diseases are rampant. There is hardly any adult without a risk factor, 98.7% have at least one risk factor.<sup>9</sup> Most of these major risk factors of NCDs in Bangladesh are related to lifestyle. Tobacco use is an important risk factor for several NCDs. According to Global Adult Tobacco Survey 2009 Bangladesh<sup>10</sup>, smoking prevalence among adult aged over 15 years is quite high (23%). The estimated number of current adult tobacco smokers is 21.9 million (21.2 million males and 0.7 million females).<sup>11</sup> The smoking rate in rural areas is slightly higher (23.6%) than in urban areas (21.3%). However, 16.6 million smokers live in rural areas compared to 5.3 million in urban areas. Smokeless tobacco is a problem of the sub-continent; in Bangladesh around 27.2% (25.9 million) of the adult population currently use smokeless tobacco. Prevalence is similar in males (26.4%) and females (27.9%). Current smokeless tobacco use is more prevalent in rural areas (28.8%) compared to urban areas (22.5%). Among all adults, 45% were exposed to second-hand smoke in public places. Males were more exposed (69.4%) than females (20.8%). Restaurants (27.6%) and public transportation (26.3%) were the most common places where people were exposed to second hand smoke. Among all persons engaged in some occupation who work in indoor areas, 63% (11.5 million) were exposed to second hand smoke in indoor areas of the workplace; among non-smokers, 75.7% (5.1 million) were exposed to second hand smoke at these workplaces. A substantial proportion of GDP (1.4%) is burned out for purchasing cigarette and bidi.

Unhealthy diet is another key risk factor although fruit and vegetables are included in people's diet; however the amount they consume on an average is far less in terms of required serving. According to NCD risk factor survey 2010,<sup>9</sup> the overall daily per capita consumption of fruit was 1.7 servings and of vegetables 2.3 servings against their minimum daily requirement of 5 servings in either form. Considering the cutoff as minimum recommended amount, 95.7% didn't consume adequate fruit or vegetables on an average day. Physical inactivity, particularly among female and urban residence is low. Sedentary lifestyle in urban population is a major risk factor. According to the report, prevalence of low level of physical activity is quite high (27%). Although undernutrition is a major concern in sections of population, around one fifth (18%) of the adult population were reported to be overweight and this is higher in women (22%).

## Box: Findings of Bangladesh NCD risk factor Survey 2010.

Prevalence (%) of selected risk factors among the adult population aged  $\geq 25$  years

Risk factors	Men	Women	Both sexes
Current smoking	54.8	1.3	26.2
Smokeless tobacco use	29.4	33.6	31.7
Tobacco use (any form)	70.0	34.3	51.0
Low vegetable/fruit intake <sup>a</sup>	97.6	94.1	95.7
Low physical activity <sup>b</sup>	10.5	41.3	27.0
Overweight (BMI > 25 kg/m <sup>2</sup> )	13.0	21.6	17.6
Large waist circumference <sup>c</sup>	8.0	33.7	21.7
Hypertension <sup>d</sup>	18.5	17.3	17.9
Self reported diabetes mellitus (documented)	4.3	3.6	3.9
<sup>a</sup> < 5 serving/day <sup>b</sup> < 600 MET <sup>c</sup> men $\geq 94$ cm women $\geq 80$ cm <sup>d</sup> ( $\geq 140/90$ mmHg or on anti-hypertensive medication)			

The population of Bangladesh is experiencing a major shift from a young population to a much-older population with consequent implications for healthcare, especially for NCDs. In terms of the number of lives lost due to ill-health, disability, and early death (DALYs), NCDs (inclusive of injuries) accounts for 61 percent of the total disease burden while 39 percent is from communicable diseases, maternal and child health, and nutrition, all combined.<sup>12</sup>

Study on tobacco related illness in Bangladesh in 2007<sup>13</sup> reported population level prevalence of tobacco related illness. They predicted that 2.9 million cases of the eight tobacco related illnesses could be found in the population, of which 1.2 million could be attributed to tobacco usage. Hospital prevalence of the eight diseases they reported are Ischaemic heart disease (7.7%), COPD (5.9%), lung, larynx and oral cancer together (3.6%), pulmonary tuberculosis (2.6%), Buerger's disease (0.5%) and stroke (8.9%).

Around 17.9% of the survey population in the Bangladesh NCD risk factor survey were having hypertension.<sup>9</sup> A population based study<sup>14</sup> in rural Bangladesh conducted to see the prevalence of IHD revealed a higher prevalence (18.6%) of hypertension like the current study.

Population data indicate an increasing trend in diabetes prevalence especially in urban areas.<sup>15</sup> A study in 2009 in a rural area found documented diabetes prevalence of 3.0%.<sup>16</sup> NCD risk factor survey 2010 revealed a percentage of documented diabetes of around 3.9% among people aged  $\geq 25$  years. However studies that used blood sugar measurement showed higher prevalence. In rural adults, the prevalence is about 5%,<sup>17</sup> In urban area the prevalence is just double (10%).<sup>18</sup>

As the NCD burden grows, ensuring that health systems can adequately address non-communicable diseases becomes integral to augmenting the capacity of health systems to meet evolving health challenges. Health service delivery needs to adapt to transition from a predominantly acute care model to one that balances prevention with disease management and palliative care. For this to occur, integrating NCD prevention and management into primary health care is essential.

### **Key challenges of NCD prevention in Bangladesh**

NCDs have further burdened the already strained health system and inflict great cost on the society. Economic growth has a number of key determinants and precursors, of which health is a significant field. In poor countries like Bangladesh, NCDs have historically not received adequate attention from policy makers, development partners, researchers and academicians. This is despite the fact that the burden of NCDs in Bangladesh is substantial, and patients with these conditions make significant demands on health care resources. The NCD epidemic slows economic growth especially in poor countries like Bangladesh where deaths are usually premature following prolonged suffering. Furthermore, NCDs reduce incentives for savings in the expectation of a shorter life span by the affected individual. Rural inhabitants and urban slum dwellers particularly suffer the most and the situation is compounded by illiteracy, less accessibility of health services and poverty.

Addressing NCDs happens to be a multifaceted challenge. Unplanned rapid urbanization, unfettered tobacco, food and beverage industries, at the backdrop of widespread ignorance are the breeding ground of these diseases. Unfortunately, many of these factors are beyond direct control of the health sector alone; other major problems lie in the difficulty in translation of NCD strategies into activities. Appropriate strategies under high level political commitment and necessary funding to facilitate the prevention and control of NCDs as part of the integrated development and health agenda of Bangladesh are essential. Despite whole hearted efforts by the government as well as development partners there is substantial inequality in distribution of disease prevalence as well as accessibility of services. Building capacity within the health workforce to reflect this transition will maximize opportunities for prevention, early detection and treatment, on one hand, and chronic care, rehabilitation and high quality palliation on the other. The shift from acute care to chronic disease management requires a people-centered approach, and the people at the centre of care policy framework can provide guidance. However, the current health system is yet to adopt such changes.

Vertical programme implementation approach is a major setback that these diseases can't be targeted through a set of harmonizing actions with existing public health systems and incorporating contemporary evidence-based concepts into this approach. Monitoring and evaluation are not planned 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 the strategic issues of NCD has to compete with other necessary and immediate and urgent matters. Some of them are beyond direct control of health sector. 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.

### **Major challenge of NCD prevention activities are**

- Translation of NCD strategies into activities
- Capacity development of the service providers for providing quality services in secondary and primary level
- Provision of essential drugs for NCDs
- Reduction of out of pocket expenditure by the clients
- Scaling up of the NCD prevention "models" throughout the country
- Development of National Communication Strategy for Health Promotion on NCDs

### **Major barriers of NCD prevention activities are**

- Inadequate and out-dated legislative provisions with loopholes
- Inadequate enforcement of laws and acts
- Absence of coordinated strategy, policy and action
- Lack of healthy lifestyle friendly environment
- Difficulty in accessibility to health care
- Disparity and inequity in health service provision

### **Areas of limitation of health system**

- a. The patient's responsibility and role in disease management are not emphasized;
- b. Follow-up is sporadic;
- c. Community services tend to be ignored; and
- d. Prevention is underutilized and underemphasized.



## Achievement of Bangladesh so far in NCD prevention and control

The new five year health sector programme of the Government has identified NCDs as priority objectives to achieve, giving an excellent opportunity to bring forward the NCD agenda for meaningful actions. Progress has been made in policy development for NCD prevention and control. Current health sector plan identifies cardiovascular diseases (CVD), cancer and diabetes as major public health problems. Bangladesh has ratified the Framework Convention on Tobacco Control (FCTC) in June 2004. National essential drugs policy and a list of essential drugs, that includes NCD related drugs, have been developed. National strategies for responding to specific NCDs have been adopted. Among them 'The National Cancer Control Strategy', 'Injury Prevention Strategy', 'Deafness Prevention Strategy', 'National Eye Care Plan' are notable.<sup>19</sup> Legislative initiatives taken are 'Amendment of Mental Health Act' which is in the process of enactment, 'Review of tax policy'; Increase of tobacco tax by National Board of Revenue and 'Amendment of Tobacco Control Law to seal the loopholes. A review of NCD related laws is ongoing to suggest amendments to meet the current days need. A list of policies and strategies on non conventional NCDs is Given in Appendix.

Logistics and skilled human resource are made available at tertiary level hospitals for management of NCDs. Diagnosis and management facility for major NCDs is made available at public and private primary health care facilities. To harmonize the activity health manpower at different level were oriented and trained about NCD and its prevention. As a part of data generation Bangladesh Global Adult Tobacco Survey 2009 and Bangladesh NCD Risk factor survey 2010 have been conducted although population based surveillance system have not yet been developed. The present system for disease surveillance in Bangladesh is mainly hospital-based and focused on communicable diseases. At the upazilla and district level, health facilities maintain a disease profile of patients and reports are destined upwards monthly to Management Information System (MIS) of Directorate General of Health Services (DGHS).

Community-based mental health promotion and blindness prevention programme has just been initiated in several upazilla of the country. Line Directorate of NCD, DGHS is also implementing NCD surveillance model in six upazilla. Several other pilot initiatives like NCD prevention model, health promotion model etc. at upazilla level are now underway with the potential of country wide scaling up.

At district level and in some upazillas specialists for 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 different regions of the country. Some tertiary level specialized institutes/hospitals equipped with advanced technology and skilled manpower for treatment of NCDs but almost all of them are located in the capital city.

Several legislative and strategic initiative have been taken in Bangladesh, however skepticism is strategies and laws are not enough unless adequate enforcement is done, which is particularly a gray area in this part of the world. Future strategic priorities for Bangladesh are the inclusion of country specific NCD prevention program in the upcoming new health sector program. Establishment of population based surveillance system and registries for major NCDs and development of National Communication Strategy for Health Promotion on NCDs would be a major step forward. As injury prevention initiatives scaling up the injury prevention piloting throughout the country along with preparation for the Decade of Action for Road Safety (2011-2020) is a major priority.

Implementation of such plan of action will lead to generation of new information for improving the performance of the health system. Multi-sectoral and multidisciplinary participatory actions that involve relevant sectors considering the long term perspectives as well as recognizing the multifaceted interaction between personal choices, social norms, and economic and environmental factors will be the key for implementation of the action points. In recent times significant sensitization has already been achieved at policy level, the country is heading at a considerable pace towards the goal.

# Goal and Objectives of the Strategic Plan of Action

## Vision and Focus

### Vision:

A nation free of avoidable NCD deaths and disability.

### Focus:

The strategic Plan of Action is focused on practical, cost-effective and evidence based interventions that can be adopted to achieve a reduction in NCD risk factor prevalence, and NCD morbidity and mortality.

### Goal:

To reverse the increasing NCD deaths and reduce it by 2% per annum

## Objectives:

1. To raise the priority accorded to NCDs in development works at national level and integrate prevention and control of such diseases across all government department.
2. 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.
3. To establish and strengthen national policies and plans to increase the capacity of the health system for prevention and control of NCDs.

4. To promote the intervention strengthening health promotion measures including risk reduction and behavioral change through healthy lifestyle and well-being campaigns to combat public health threats caused by tobacco use, unhealthy-lifestyle, physical inactivity, harmful use of alcohol occupation and environment related diseases, mental illness and injuries.
5. To promote research for the prevention and control of non-communicable diseases.
6. To assist communities in terms of knowledge and creating favorable environment to empower people to become responsible for their health.
7. To develop a common platform by promoting network formation among the relevant stakeholders for surveillance, prevention and management of NCDs so that they can participate in regional network for the prevention and control of non-communicable diseases.
8. To monitor NCDs and their determinants, and evaluate progress at the national level.

# Key principles for strategies on NCD surveillance and prevention in Bangladesh

The strategies on NCD surveillance and prevention in Bangladesh are built around eight key principles. These are based on the "guiding principles" already recommended (Appendix 2)

## 1. **People-centred health care**

Interventions and initiatives must adhere to the People-centred Health Care policy framework.

## 2. **Cultural relevance**

Policies, programmes and services must respect and take into consideration the specific cultures and the diversity of populations within the country.

## 3. **Focused on reducing inequities**

The burden of chronic diseases is disproportionately borne within country, by the poorer and less advantaged sections. Other social determinants of health, such as race and gender, can also influence differential health outcomes from NCDs. Thus, interventions must address the need to reduce inequities within countries by considering the social determinants of health to enable the attainment of healthy outcomes by all.

## 4. **Encompassing the entire care continuum**

The Strategic Action Plan affirms the importance of a balanced approach to NCDs, beginning with prevention and health promotion, lifestyle interventions to modify risk factors, screening, clinical interventions for high risk individuals and groups, all the way through to chronic care, rehabilitation and palliation. This implies that the active participation of the entire health system is fundamental to creating impacts on population health.

## **5. Involving the whole of society**

Many of the critical interventions to prevent and control chronic diseases lie outside of the direct sphere of influence of the health sector. Thus, multisectoral partnerships are essential to successful NCD prevention and control.

## **6. Integral to health systems strengthening**

NCDs impact on the health care system not only in terms of increased service utilization and the associated costs, but also in the nature of the demands on service delivery to meet the needs of patients requiring long-term care.

## **7. Consistent with the Global Action Plan and supportive of existing strategies and action plans**

Recommended actions are in line with the objectives of the Global Action Plan, and with the strategies and principles of previous Action plans. This plan utilizes the best available science in selecting strategic actions while acknowledging the current limitations of research into the effectiveness of NCD interventions.

## **8. Flexibility through a phased approach**

Recognizing that areas are at different stages of capacity for NCD prevention and control, the Strategic Plan of Action aligns its strategic actions along a continuum consistent with the NCD causation pathway. This phased approach allows Bangladesh to intervene at different points along the continuum depending on the local situation, capacity and resources.

# Strategic approach for NCD surveillance and prevention

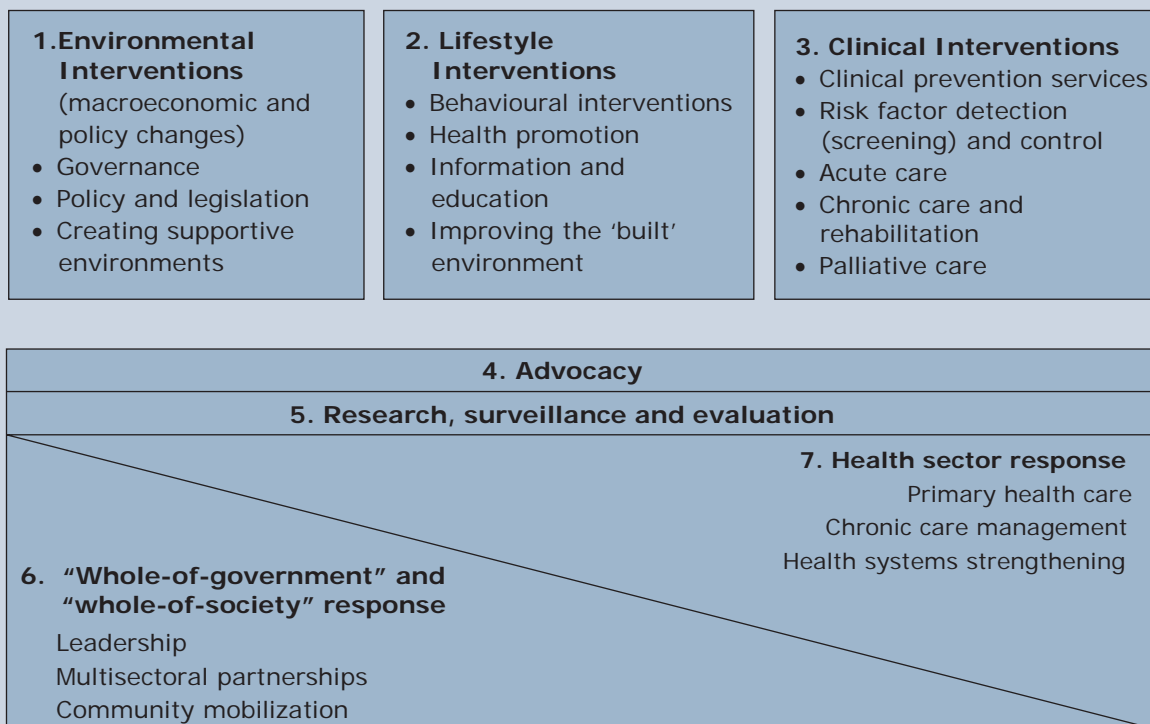
The strategic plan of action for NCDs utilizes a comprehensive approach that simultaneously seeks to effect change at three levels:

1. At the environmental level, through policy and regulatory interventions;
2. At the level of common and intermediate risk factors, through population-based lifestyle interventions; and
3. At the level of early and established disease, through clinical interventions targeted at the entire population (screening), high-risk individuals (risk factor modification) and persons with established disease (clinical management).

To support change in these three levels, additional actions are needed in the following areas:

1. Advocacy;
2. Research, surveillance and evaluation;
3. Leadership, multisectoral partnerships and community mobilization; and
4. Health systems strengthening.

In summary, the approach recognizes seven strategic action areas along an intervention pathway that corresponds to the NCD causation pathway.



Adapted from Strategic approach and action areas in the Western Pacific Regional Action Plan for Non-communicable Diseases, 2008<sup>20</sup>



# The 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.

## a. 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. Adapt WHO's STEP wise approach to conduct surveillance of NCD risk factors.
2. To functionally integrate the facility-based NCD surveillance with that of the existing communicable disease surveillance system.
3. To facilitate the collaborating networks among surveillance institutions and various sectors involved in NCD prevention.
4. To create mechanism for incorporating NCD surveillance into national health information system.
5. To Identify culturally-relevant questions for collection of expanded and optional information on selected risk factors which are common and relevant to the country.
6. To strengthen capacity through state-of-art technology for data recording, analysis and dissemination, a standardized registration system on certain NCDs at health facilities as well as in communities.
7. To develop technical material and tools and impart training to facilitate collection of data.
8. To promote effective and timely utilization of NCD surveillance data.
9. To strengthen capacity of the institutes/organizations on various aspects of NCD surveillance.
10. To strengthen technical expertise and infrastructure for undertaking NCD surveillance, establishing regional and national mechanisms for training in NCD epidemiology, especially for analysis of data and management of information utilizing existing mechanisms.

## **b. Health promotion and prevention of NCDs**

Health promotion is the process of enabling people to increase control over the determinants of health and thereby improve their health. It is a comprehensive social and political process Includes increasing individual and collective participation/involvement in health action.

### **1. Building Healthy Public Policies**

Health must be put on the agenda of policy making in all sectors and at all levels-healthy outcomes. Policy makers need to be aware of the health consequences of their decisions, policies should contribute to safer and healthier goods and services, and cleaner, more enjoyable environments Examples: Nutrition: Food fortification, (Iodine, Vitamin A), Road safety, Tobacco control, provision of walk way, play ground in educational institutions.

### **2. Creating Supportive Environments for Health**

It can be achieved by creating national/regional partnerships for NCD control, developing national NCD policies, strategies and plans of action. e.g. Passing of tobacco legislation, Increasing tax on tobacco and alcohol and supporting patient associations for heart disease, diabetes, cancer, stroke

### **3. Strengthening Community Actions**

Health promotion supports relevant knowledge, skills and attitudes development /improvement on causes and prevention (e.g. diabetes). It facilitates problem identification, priority setting, selecting strategies and implementing activities (diet, physical activity, treatment, screening). Community actions draw on existing human and material resources in the community to enhance self-help and social support This requires full and continuous access to information, learning opportunities for health, as well as necessary technical and or funding support.

### **4. Developing Personal Skills**

Health Promotion supports personal development through providing information, education for health, and enhancing life skills. It increases the options available to people to exercise more control over their own health and over their environments, and to make choices conducive to health (medical check up, accessing health services, self-care and treatment). Health Promotion enables people to learn, throughout life, to prepare themselves for all of its stages and to cope with chronic illness and injuries (diet, activity in youth and their effects in middle and old age).

## 5. Reorienting Health Services to Respond to People's Needs

The role of the health sector must move increasingly in a Health Promotion direction, besides its responsibility for providing clinical and curative services. The health sector should be in partnership with communities and the society as a whole. Stronger attention to health research as well as changes in professional education and training are essential. This must lead to a change of attitude and organization of health services which focus on the needs of the individual as a whole person.

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

1. To support and facilitate the development of a healthy public policy which supports NCD prevention through promotion of healthy lifestyle.
2. To support and facilitate the functioning of collaborating networks among stakeholders and partners involved in promotional activities and for NCD prevention.
3. To enhance active involvement of health professionals in health promotion for NCDs by promoting healthy lifestyle.
4. To improve capacity of health 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, and scale out those technology.
7. To advocate for reviewing the existing regulations, and developing and implementing legislations and regulations.

### c. 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 in line with WHO strategy of "Global initiative for scaling up management of chronic diseases"<sup>21</sup>. Considering the limited resources and the characteristics of NCD services (investigations, long-term and expensive medications and 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. The key strategies are:

1. To develop competency-based training for health care providers in dealing with NCD care.
2. To develop collaboration among educational institutes 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 improve promotion and prevention activities on NCDs at health institutions.
5. To advocate and ensure basic medicines and diagnostic facilities for NCDs available at primary care level.

# Role of key players

## 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

## 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, Director General of Family Planning, Line Director (NCD & OPHI) DGHS, Line Director (PHC) DGHS, Joint Secretary (Public Health & WHO), Joint Chief Planning (MOHFW), Director MIS, Director of the Institute of Epidemiology, Disease Control and Research (IEDCR), Director NIPSOM, Chief BHE etc.

## Ministry of Health and Family Welfare:

- Political lobbying - Investment in the prevention of non-communicable diseases must be shown as an investment with expected gains in productivity, employment, social cohesion and economic development.
- Advocacy in order to create living conditions conducive to health and the achievement of healthy lifestyles.

- Build capacity - human and financial resources, infrastructure and consumables (drugs, technologies etc)
- Form partnerships with international and national relevant stakeholders
- Consensus by consultation with all relevant stakeholders, government, non-government and private sector
- Set up an executive national programme team responsible for participation in international meetings, preparing detailed action plans, realizing policies and targets and for setting national guidelines
- Set up an interministerial (intersectoral) committee for collaboration between health sector, education, finance, environment, transport, labour, agriculture, trade unions, NGO's etc.
- Monitoring and Evaluation of Programmes
- Coordinate all committees and programme teams

### **Directorate General of Health Services**

- Initiation and maintenance of surveillance system to monitor and assess risk factors of NCD in harmony with Management Information System (MIS) department
- Dissemination of relevant and timely information to policy makers and evaluators
- Maintenance of NCD Info-base, as an electronic source of NCD information
- Generation of epidemiological information through surveys, trends, research and translational studies
- Implementation of pilot programmes and necessary scaling up based on evidence
- Design of cost-effective health-care packages
- Implementation of programs and health impact assessment as a tool
- Skill building programmes (Training workshops, training manuals for doctors, nurses, paramedics)
- Undertake activity to raise awareness among community (Establishment of Social networks support groups, School Health Service etc.)
- Regulation of and compliance

### **Bureau of Health Education (for Health Promotion and Disease Prevention)**

The bureau of health education is responsible for Health Promotion and Disease Prevention and will provide leadership in creating partnerships to build resources and commitment to improve health, thus prolonging and promoting healthy life. Development of communication action plan should be in practice. Key strategies for promoting health are:

- Advocacy - use of mass media, print, electronic etc.
- Health literacy - general public, teachers, police, social workers, journalists and local councils

- Management Information System - dissemination of relevant and timely information to policy makers and evaluators
- Capacity Building
- Community Development
- Lobbying for the inclusion of Health in the National Action Plan on Poverty and Social Exclusion
- Involving communities in decision-making and problem solving processes in order to influence their health
- Targeting structural change of the environment
- Health Promotion, Counseling and Skill Development
- Provide correct information to the general public
- Influence how people think and behave
- Utilize the media to the best possible effect
- Promoting and enhancing Social Marketing

## Directorate of Primary Health care

Primary care teams play a crucial role in providing integrated care. The future Primary Care delivery following the proposed reform will encourage preventive medicine modalities to be introduced in the form of NCD clinics, in addition to the services already available. The existing doctors and other health care professionals working (government and non-government) within the jurisdiction of Upazilla Health Complex can be trained in various preventive, and health promotion modalities which will be provided in the UZHC. (Another alternative is to provide such clinics within the community or within specific settings such as schools or day centers and homes for the elderly.) This could be achieved through collaboration with local councils, schools, NGOs and other organizations.

- Tailored services oriented towards prevention rather than cure
- Client oriented, quality/safety embedded
- Evidence based prevention guidelines
- Partnerships, multidisciplinary care teams including family doctors, nurses, nutritionists etc.
- Disease specific strategy for health care delivery
  - Hypertension clinics - control and prevention of complications
  - Diabetes clinics - control and prevention of complications
  - Stroke Rehabilitation Clinic
  - Smoking Cessation clinics
  - Nutrition/dietary advice clinics

### **Autonomous organizations:**

The partner autonomous bodies such as Bangabandhu Sheikh Mujib Medical University (BSMMU), BIRDEM, National Heart Foundations, will take part actively in the surveillance of NCDs. BSMMU 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.

### **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 health sector priorities. Therefore international funding agencies such as World Bank, JICA, Asian Development Bank, DFID may show their interest to invest in this sector.



# The 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.

## The objectives of BanNet 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.

## 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. Advisory Committee:**

A national steering committee will be formed under the leadership of Director General of Health Services, Line Director (NCD & OPHI), relevant development partners, UN agencies, subject specialists, Director MIS, Director of the Institute of Epidemiology, Disease Control and Research (IEDCR), Chief 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, nongovernment, 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 Line Director (NCD) 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.

## Common Framework for Action

The strategic plan for surveillance and prevention of NCDs in Bangladesh

1. Surveillance			
Action Agenda Items	Process Indicators	Output Indicators	Outcome Indicators
Development and maintenance of effective surveillance (population and facility based) in alignment with Management information system of DGHS for monitoring and evaluation of NCDs and risk factors and morbidity/mortality statistics by cause.	Development and introduction of methodology and tools for a common population-based NCD surveillance system.	Population based NCD Surveillance system is in place and functioning. Reports and publications produced.	Decisions made using surveillance information generated and improved service delivery related to NCDs.
	Strengthening facility based NCD surveillance system	Results/materials disseminated to policy makers, public, media and professional groups.	
	Building technical capacity for surveillance at various levels.	Trained manpower developed and is providing services at various levels.	Continued data flow to the NCD surveillance system.
	Development and introduction of methodologies for research on further improvement of the surveillance.	Developed population based sentinel surveillance centers	Population based data available for policy makers
Strengthening of NCD InfoBase at DGHS		Strengthened electronic database at the DGHS (Logistics, human resource & IT and Network) Updated information is posted periodically in the web. Periodic publication of newsletters and reports on NCDs Seminars for dissemination of surveillance data	Relevant users have access to updated information on NCD

2. Health Promotion and Prevention of NCDs			
Action Agenda Items	Process Indicators	Output Indicators	Outcome Indicators
Development of evidence guided behavior change communication Strategy (Communication for behavior impact, COMBI) for NCD, and its implementation at national and community levels	<p>Baseline assessment of knowledge level, practices and perceptions.</p> <p>Participatory communication through assessment of community needs, Profiling of community resources, identification of community leaders</p> <p>Development of linkages with social organizations and primary healthcare systems and local NGOs</p> <p>Constitution of multidisciplinary teams consisting of national programme managers, Public health specialist, local opinion leaders, members from the media, community activists, NGOs etc.</p> <p>Workshops/consultations to develop the methodology and tools of intervention</p> <p>Establishment of communication with media,</p> <p>Development of mass media intervention,</p> <p>Development of social marketing concepts with media interventions and development of messages and vignettes</p>	<p>Number of coalitions built.</p> <p>Number of community meetings held,</p> <p>Number of advocacy actions taken</p> <p>Number of preventive activities initiated and groups targeted.</p> <p>Tools of intervention developed</p> <p>Locally applicable and relevant intervention strategy developed</p> <p>Trained persons with relevant technical skills available</p> <p>Hours of average exposure per year of various educational messages</p> <p>Number of electronic and print media interventions per year and Social marketing campaign popularized</p> <p>Highly visible behavior change communication plan incorporating a strong social marketing approach implemented.</p>	<p>Change in awareness level on NCD in population</p> <p>Improvement in people's knowledge relating to the ill effects of tobacco use</p> <p>Reduction in the proportion tobacco user</p> <p>Increase the level of physical activity</p> <p>Increased adoption of healthy lifestyle</p> <p>Raised community awareness on healthy diet Including low salt intake. Increase consumption of at least two servings of fruit and three servings of vegetables every day ("2 plus 3 A Day").</p> <p>Increase in awareness about risks of and warning sign of cancer, stroke, heart disease and diabetes</p> <p>Percentage of target population reached by various activities</p>

<p>Implementation of policies and public awareness campaigns to reduce stigma and discrimination associated with NCDs.</p>	<p>Advocacy for prevention of NCDs through sensitization meeting with policy makers and relevant authorities</p> <p>Training of health workforce on advocacy, health promotion and prevention of NCDs</p> <p>Development and printing of manuals on detection, treatment and prevention of selected NCDs</p> <p>Promotion of active participation of female members in family decision making.</p> <p>Observance of important days for NCD related diseases and events</p>	<p>Policy makers appraised</p> <p>Trained health work force available for advocacy</p> <p>Advocacy of patients and women conducted</p> <p>Manuals on detection, treatment and prevention of selected NCDs are available</p>	<p>Community sensitized</p> <p>Reduced stigma towards NCDs</p> <p>More women attended health care and screening for NCDs</p>
<p>Promotion of healthy lifestyle in schools</p>	<p>Health promotion in school for raising awareness and prevention of NCDs</p> <p>Orientation about healthy lifestyle among school children (Leaflet publication, distribution, demonstration etc)</p> <p>Advocacy for inclusion of information about healthy lifestyles in the school curricula and including physical activity in the daily school routine.</p> <p>Advocacy for provision of play ground in schools, colleges and universities. Park for physical exercise designated. (eg. Early morning club with provision of Facility and security)</p> <p>Anti tobacco campaign among high school children</p> <p>Advocacy to free the foot path and make it commuter friendly</p> <p>Promotion of walk to school campaign</p>	<p>Number of educational institution covered for health promotional activities including advocacy for play grounds</p> <p>Number of schools covered for anti tobacco campaigns</p> <p>Healthy environment in the school established</p> <p>Healthy lifestyle information included in text book</p>	<p>Awareness among school children raised</p> <p>Practicing healthy lifestyle among school children increased</p>



<p>Harvesting social support for Campaign against NCDs</p>	<p>Conduct advocacy and sensitization programme to ensure support among stakeholders for establishment of sustainable development</p> <p>Mass media advertisement and billboard establishment on NCD health promotion message through harvesting corporate social responsibility.</p> <p>Mass media campaign to raise awareness about NCD risk factors and prevention using celebrity or champions.</p>	<p>Support associations and civil society organizations working to prevent and control NCDs.</p> <p>No of associations supported to prevent and control NCDs</p> <p>No of sensitization and awareness meetings held</p> <p>No of corporate participated in health promotion activity</p>	<p>Raised awareness among people</p>
<p>Piloting of NCD prevention model</p>	<p>Establishment of NCD prevention model jurisdictions (Piloting model upazilla.)</p> <p>Piloting of NCD corner (counseling, human resource, logistics) at NCD model upazilla</p> <p>Advocacy for including NCD related information in GR</p> <p>'Well Women Clinic' initiative in model Upazilla for providing screening services for hypertension, diabetes, breast and cervical cancer to adult women along with other services.</p>	<p>Model NCD prevention and control upazilla established Women friendly NCD prevention and control service delivery piloted</p>	<p>Nationwide Scaling up of the model after adjusting for the lesson learnt</p>

Special campaign against Tobacco, alcohol and substance abuse free initiative	Mass media campaign against smoking in public Campaign to raise awareness about harm of smokeless tobacco Tobacco cessation initiative (Establishment of counseling hotline center) Series of workshops with policy makers and lawyers, professional bodies and law enforcing body for enforcing FCTC (demand reduction strategies and supply issues) Mass media campaign against substance abuse (advertisement on TV)	<ul style="list-style-type: none"> <li>• FCT C enforced</li> <li>• No of workshops held with Law makers, enforcing agency and civil society</li> <li>• Amount of mass media coverage</li> </ul>	Reduction of tobacco use, alcohol and substance abuse in community
National policies with respect of household energy source	Improved stoves for burning solid fuels more efficiently; structural measures for improved ventilation; alternative energy source Mass media campaign	<ul style="list-style-type: none"> <li>• Use of fuel efficient burner increased</li> </ul>	Reduced exposure of solid fuel smoke in community
<b>3. Orientation of the health services</b>			
<b>Action Agenda Items</b>	<b>Process Indicators</b>	<b>Output Indicators</b>	<b>Outcome Indicators</b>
Coordination of NCD prevention and control	<p>Formation of Steering Committee on NCD in Ministry of Health &amp; Family Welfare</p> <p>Formation of advisory board for overseeing and support of activity</p> <p>Professional societies participating in NCDs prevention &amp; control</p> <p>Establishment of National center for NCDs</p>	<p>Central National Steering Committee working</p> <p>Steering Committee functioning at different level (e.g. District &amp; Upazilla)</p> <p>National center for NCDs established</p>	Efficient and coordinated functioning of NCD activity from top tier to grass root leve

<p>Knowledge and skill development of health professionals on NCDs</p> <p>Development and implementation strategies to strengthen human resources, to ensure equitable access to NCD prevention.</p> <p>Involvement of all categories of health-care providers in the prevention of NCDs and its integration in health services.</p>	<p>Advocacy for inclusion of 'NCD Epidemiology, prevention and control in various medical education curriculum</p> <p>Inclusion of disease prevention theory and practice in medical and paramedical curricula.</p> <p>Establishment of internships on health promotion and disease prevention at the undergraduate and postgraduate levels</p> <p>Development of sustainable, scientifically valid and resource-sensitive CME programmes for training all categories of healthcare providers.</p> <p>Development of educational tools which incorporate resource-sensitive risk management and assessment algorithms.</p> <p>Endorsement of efforts by scientific societies Ensuring availability and access to educational opportunities for physician, non-physician healthcare providers, nurses and undergraduate students &amp; during training of post graduate students</p> <p>Training of health care professionals on ICD based diagnosis of NCDs and death certification</p>	<p>NCD Epidemiology, prevention and control included in various medical education curriculum</p> <p>Number of health professionals with access to course/curricula with modules for health promotion and disease prevention.</p> <p>Scientifically valid and resource-sensitive training tools developed</p> <p>Adoption of preventive practices by healthcare providers at community, district, and at tertiary level facilities.</p> <p>Health care professionals trained on ICD based diagnosis of NCDs and death certification</p>	<p>Health care providers are oriented about prevention paradigm of NCD</p> <p>Change in awareness and practices of healthcare providers on NCDs.</p> <p>Increased proportion of healthcare providers giving NCD prevention advice</p>
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<p>Ensuring availability of essential drugs at the primary healthcare level. (eg. antihypertensive, insulin and other diabetes medicine, affordable asthma inhalers)</p>	<p>Availability of drugs essential for the prevention and treatment of NCDs at all levels of healthcare.</p> <p>Demand based, judicial allotment of essential drugs at all levels of health care facilities.</p> <p>Advocacy to provide subsidy for some essential drugs for NCDs Initiative to be taken to reduce pilferage</p>	<p>Drugs are supplied to different facilities according to demand</p> <p>Cost of certain essential drugs reduced</p>	<p>More people can access essential drugs at affordable cost.</p> <p>Compliance to treatment will be more</p>
<p>Utilization of existing health workforce at primary care level for NCD surveillance, screening and prevention</p>	<p>Training of Field health staff, on feasible screening/diagnostic methods of the targeted NCDs and risk factor (Diabetes, Hypertension, obesity etc)</p> <p>Sensitization and orientation of health facility staff on NCDs</p> <p>Capacitating UHC with (Human resources, equipment &amp; logistics) for early detection and care for the targeted NCDs</p> <p>Supply of NCD screening tool (BP machine, Glucometer, Measuring tape, etc.) and register to the field health staff of the community clinic</p> <p>Campaign to inform and encourage people about availing the diagnostic facility at primary health care level</p> <p>Mass media campaigns to inform people about earlier signs of NCDs to encourage people to seek health care /advice for detection of NCD</p> <p>Establishment of NCD notification and reporting system at UHC</p> <p>Arrangement and set up office and logistics for NCD corner at UHC</p> <p>Orientation of GPs, MOs of hospital (IPD &amp; OPD), MOs of clinics</p>	<ul style="list-style-type: none"> <li>• Health work force trained for NCD prevention and control</li> <li>• No of upazilla health complexes provided logistic support for screening of NCDs</li> </ul>	<p>Maximizing utilization of health workforce for NCD screening, surveillance and prevention</p> <p>60% detection of diabetes</p> <p>50% detection of Hypertension</p>

<p>Curative care for NCD-detected</p>	<p>Development of population specific clinical guidelines for care of Selected NCDs including emphasizing pharmacological &amp; non pharmacological treatment (Hypertension, Diabetes, Heart disease ,Stroke and Cancer) Orientation training of primary care physician for promoting 'advice of NCD prevention on prescription' for care seekers and at-risk populations Training of private medical practitioners (GP) with the focus of NCD treatment, diagnosis and prevention Campaign to raise awareness among practitioners about rehabilitation needs in treatment of Non Communicable Diseases</p>	<p>Clinical guidelines developed for selected NCDs Strategies to address NCD treatment and care in emergencies and natural disasters are developed and implemented</p>	<p>Effective curative service for NCDs at different health tier</p>
<p>Aligning Service Delivery through Public-Private Partnerships (PPP)</p>	<p>Advocacy on prioritization of NCD prevention and control among NGOs and private health care provider.  Promoted policy for urban design to include safe open spaces and encourage walking, cycling, and other physical activities.</p>	<p>GO-NGO collaboration achieved  Open spaces are designated for walking, cycling, and other physical activities.</p>	<p>Area and scope for prevention and curative service for NCD widened</p>

4. Legislative and/or regulatory measures			
Action Agenda Items	Process Indicators	Output Indicators	Outcome Indicators
<p>Review of the existing laws and acts related to NCD control and prevention</p> <p>Enactment, amendment and enforcement of laws and regulations related to NCDs</p>	<p>Activities to garner public support for legislation/regulation essential for prevention and control of NCDs</p> <p>Establishment of task forces and working groups to support/lobby parliamentary committees.</p> <p>Proposals to legislators for enacting/amending law(s).</p> <p>Development of food product safety standards</p> <p>Develop and implement policies for urban design to include safe open spaces and encourage walking, cycling and other physical activities.</p> <p>Multi-stakeholder dialogue between relevant ministries, economists, multilateral donors and bilateral lending agencies</p> <p>Media accounts highlighting the need for legislative and regulatory measures</p>	<p>Development of new legislation addressing NCD risk factors and enforced</p> <p>Amendment of existing laws such as tobacco control law.</p> <p>Enforcement of Food safety regulations and law. Food standard legislation enacted.</p> <p>Implement national trade and fiscal measures to provide incentives for production, distribution and marketing of vegetables, fruit and unprocessed food.</p> <p>Control of environmental ,occupational, and other contextual risk factors associated with NCD (e.g. noise, indoor air pollution).</p> <p>Mandatory sports in educational institutions</p> <p>By 2015, develop and implement comprehensive strategies to decrease childhood obesity, and eliminate all forms of marketing, particularly those aimed at children, for foods high in saturated fats, trans-fats, salt and refined sugars</p>	<p>People are protected by law against NCD related risk exposure</p> <p>Decline in per capita consumption of tobacco and other abusing substance, added salt, trans fat.</p>

5. Research			
Action Agenda Items	Process Indicators	Output Indicators	Outcome Indicators
<p>Increase and accelerate research on NCD causes and cures, including longitudinal research into the 'early origins' of NCDs.</p> <p>Encourage operational research on prevention, treatment and management of NCDs.</p> <p>Policy and operational research of local relevance in order to examine tobacco tax policies, marketing and advertising strategies.</p>	<p>Development of tools and course to enhance research skills.</p> <p>Training courses on epidemiology and prevention of NCDs</p> <p>Conduction of National NCD and risk factor Survey</p> <p>Establishment of registries</p> <p>Operational researches for generation of evidence on risk factor, prevention and management</p>	<p>Publications prepared through acquisition of data. Feedback of information to health authorities.</p> <p>National NCD risk factor survey in 2012 &amp; 2016</p> <p>National NCD survey in 2011&amp; 2016 (step 1,2,3)</p> <p>Operational research on distribution and determinants of selected NCDs and their risk factor</p> <p>National surveys like on asthma, COPD</p> <p>National disability survey due to stroke, IHD</p> <p>Identification of sustainable prevention strategy</p> <p>Evaluation of treatment trend for Hypertension, Diabetes Heart disease (CAD), Stroke etc.</p> <p>Establishment of stroke and cancer registry at specialized and tertiary Hospitals</p> <p>Periodic research on burden of NCDs and their risk factor levels.</p>	<p>Evidence generation on burden of NCDs and prevention priority</p> <p>Publications in the form of reports, articles and infobases on NCDs available.</p> <p>Research information used for decision making.</p>





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# Appendix

## Appendix 1

### National policies for Non conventional chronic diseases and injuries in Bangladesh

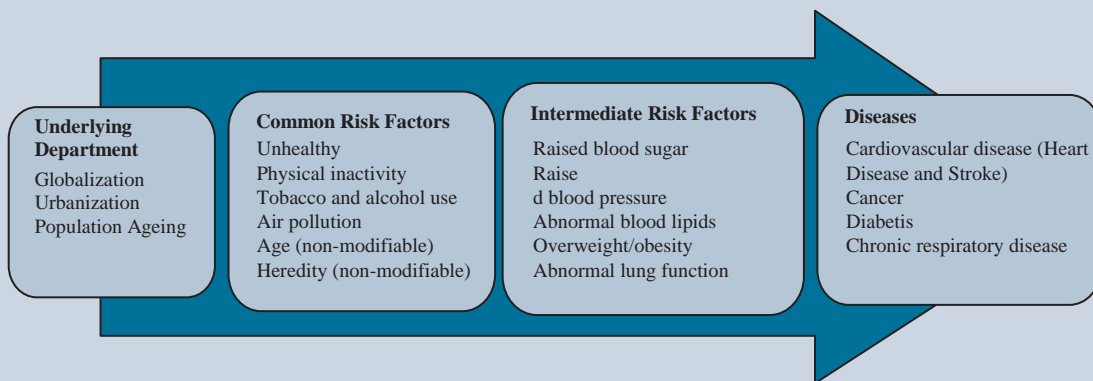
Diseases	Policy or programme	Year of launch	Focus of activities
Vision	National Eye Care	2003 Under process of upgrading	<ul style="list-style-type: none"> <li>● To eliminate avoidable blindness by 2020</li> <li>● To reduce the burden of blindness through identification and treatment of the blind;</li> <li>● To develop eye care facilities in every district &amp; Upazilla;</li> <li>● To develop human resources for providing eye care services;</li> <li>● To improve quality of service delivery;</li> <li>● Strengthening of Eye health MIS system</li> <li>● To strengthen co-operation by participation of voluntary organizations</li> </ul>
Mental health	National Mental Health Programme (Promotion of Mental health)	2011	<ul style="list-style-type: none"> <li>● Mental Health Act (Drafted)</li> <li>● Incorporation of Mental Health in Primary Health Care</li> <li>● Supply of drug and logistics</li> <li>● National mental Institute- increasing specialist human resources;</li> <li>● Social support and advocacy</li> <li>● Research</li> </ul>
Hearing	National Strategy & Program on Prevention of Deafness and Hearing Impairment: Bangladesh	2011	<ul style="list-style-type: none"> <li>● Provision of Health Education and Promotion of ear care</li> <li>● Creation of awareness</li> <li>● Human Resources Development</li> <li>● Establishment of a comprehensive epidemiological surveillance system</li> <li>● Early identification, diagnosis, and treatment of ear problems</li> <li>● Provision of equipment and training to ear care services</li> <li>● Promotion and development of Intra-sectoral and Inter-sectoral coordination and cooperatio</li> </ul>

Road traffic injury	Injury prevention and action plan for Bangladesh 2010 drafted	2010	<ul style="list-style-type: none"> <li>● Development and upgrading of rules of the National Highway Safety Ordinance</li> <li>● Legislative and/or regulatory measures to ensure safety in the design of locally manufactured vehicles</li> <li>● Promoting road safety by mass education ,publicity , driver education</li> <li>● Cost-effective interventions; prioritization of most cost-effective interventions;</li> <li>● Research and information systems up-gradation;</li> <li>● Establish safe road model, development of standards, guidelines, and road safety education</li> </ul>
	National Road safety Strategic Action Plan 2008-2010	Approved, to be updated	<ul style="list-style-type: none"> <li>● Includes road safety as an essential component to be integrated with transport development</li> </ul>
	Development and management of Urban traffic and Transport Policy	Approved, to be updated	<ul style="list-style-type: none"> <li>● It should focus on</li> <li>● urban development,</li> <li>● planning of road, foot path, over bridge safe for pedestrians,</li> <li>● transport patterns and mobility,</li> <li>● traffic legislation and control of noise and air pollution</li> </ul>
All injuries including Occupational Injury, Intentional injury, Burn, Animal bite.	Injury prevention and action plan for Bangladesh 2010 drafted	2010	<ul style="list-style-type: none"> <li>● Legislative and/or regulatory measures to ensure occupational health and safety, on building regulations and its implementation</li> <li>● Scale up community based approach such as PRECISE model for child injury prevention</li> <li>● Establishment of Burn unit and trauma care up to district level Hospital.</li> <li>● Development of legal framework and enabling policy for emergency management</li> </ul>
Poisoning & Snakebite	Control and prevention of Poisoning & Snakebite	National Plan to be developed	<ul style="list-style-type: none"> <li>● Nationwide survey on snake bite completed on 2010,</li> <li>● Nationwide survey on poisoning should be carried out.</li> </ul>
Thalassaemia	Control and prevention thalassaemia	National Plan to be developed	<ul style="list-style-type: none"> <li>● Nationwide awareness raising campaign on Pre marriage screening for trait</li> <li>● Nationwide survey on prevalence</li> </ul>
Arsenicosis	Control and prevention arsenic exposure	National Plan to be developed	<ul style="list-style-type: none"> <li>● Arsenic mitigation in drinking water source</li> <li>● Alternative water source</li> <li>● Early diagnosis and management of Arsenicosis and its complication</li> </ul>

## Appendix 2

### Guiding principles for NCD surveillance strategy development

- Advocacy for policy for surveillance, prevention and control of NCDs.
- Strengthening evidence for NCD programme development and implementation.
- Identification of major NCDs such as cardiovascular diseases, cancer, chronic pulmonary diseases, and diabetes mellitus. Conditions including blindness, deafness, poisoning, injury and mental illnesses may be considered depending on the country priorities and resources available.
- Identification of major NCD risk factors such as tobacco and alcohol use, physical inactivity, unhealthy diet, obesity, and elevated blood pressure. Considerations that guide the inclusion of these risk factors include the significance of the risk factors for public health, i.e. nature and severity of morbidity, mortality and disability associated with these; the cost of collecting valid data; the availability and strength of the evidence on effectiveness of prevention; and, the ability to measure the risk factor burden uniformly.
- Formulating a strategic framework for NCD surveillance with initial focus on risk factors.
- NCD surveillance system to be incorporated with the national health information system.
- Building regional partnership for developing functional networks for NCDs.



Source: Adapted from Preventing Chronic Disease: a Vital Investment. Geneva, World Health Organization, 2005.<sup>1</sup>

## Appendix 3

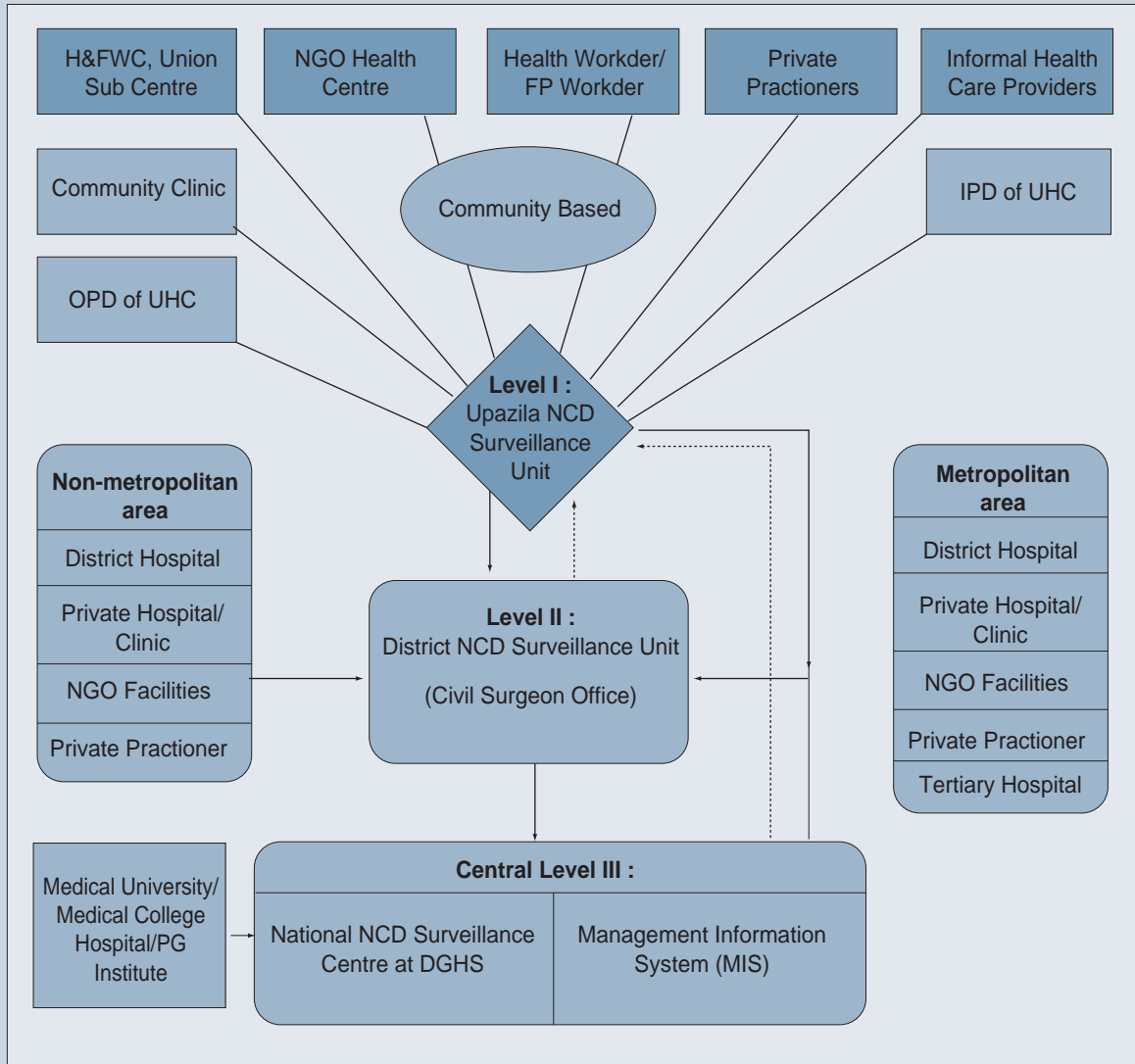
### Intervention strategies categorized by level of health system and cost-effectiveness

	Extremely cost effective (US\$100 per DALY averted)	Cost effective (\$ 100-1000 per DALY averted)	Less cost effective (\$1000 per DALY averted)
Population-wide interventions	Prevention and control of tobacco and alcohol use (through measures to reduce advertising, availability, and affordability of products, especially bidis and locally brewed alcohols); dietary salt reduction programme; screening for refractory error and provision of glasses.	Screening for hearing loss and provision of hearing aids; road traffic injury prevention (enforcement of speed limits, drink-driving law, motorcycle helmet use, and seat belt use).	Bicycle helmet use by children
Primary-care interventions	Preventive drug treatment for high blood pressure (systolic blood pressure >160 mm Hg).	Preventive drug treatment for high cholesterol; preventive combination therapy for individuals at high risk of a CVD event; flu vaccination (for people aged >60 years) and smoking cessation programmes for people with COPD; brief interventions for alcohol misusers; depression treatment.	
Secondary-care and tertiary-care interventions	Treatment of stage I breast cancer (lumpectomy and radiotherapy); extensive breast cancer programme (treatment of all stages and biannual screening for women aged 50-70 years).	Treatment of acute MI with aspirin or streptokinase; treatment of post-acute MI with aspirin, ACE-inhibitors, $\beta$ blockers, or statins; treatment of post-acute ischaemic stroke with aspirin, statins, or blood-pressure-lowering drugs; treatment of CHF with ACE-inhibitors or $\beta$ blockers; extracapsular cataract extraction with posterior chamber lens implant.	Treatment of acute MI with ACE-inhibitors or $\beta$ blockers; organised stroke unit care; treatment of severe COPD disease and exacerbations; intracapsular cataract extraction by use of aphakic glasses; schizophrenia treatment.

Source: Mendis S (2011). *The policy agenda for prevention and control of non-communicable diseases*. *British Medical Bulletin*; 96: 23-43.

## Appendix 4

### Flowchart of surveillance data



### Working group

#### Consultant

**Professor MA Faiz,**  
Professor of Medicine (PRL)

#### Members

**Prof. Dr. Khondhaker Md. Shefayetullah,**  
Director General and Line director NCD and POHI, DGHS

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Professor of Medicine, BSMMU, Dhaka

**Prof. M A Azhar,**  
Professor of Medicine & Principal SSMC, Dhaka

**Prof Quazi Tarikul Islam,**  
Professor of Medicine, DMC, Dhaka

**Prof Md. Nazrul Islam,**  
Professor of Interventional Cardiology, BSMMU, Dhaka

**Prof Md Ridwanur Rahman,**  
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**Prof. Abul Kalam Azad,**  
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**Dr. Md. Shamim Haider Talukder,**  
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**Dr. Motiuddin Ahmed,**  
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**Dr. Rubina Yasmin,**  
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**Dr. Nazmul Karim,** National Consultant (Chronic disease and Health promotion), WHO, Dhaka

#### Editors

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**Dr. Nazmul Karim,** National Consultant (Chronic disease and Health promotion), WHO, Dhaka



## Appendix 6

### List of key Informants

SI	Name	Institute
1	Prof. Hajera Mahtab	Director, Bangladesh Institute of Research on Diabetes, Endocrinology and Metabolism
2	National Professor Brig. (Rtd.) Abdul Malik	Honorary Secretary General National Heart Foundation of Bangladesh
3	Prof. Obayedullah Baki	Director, National Institute of Centre Research and Hospital
4	Prof. Mohammad Rashidul Hassan	Professor of Respiratory Medicine, National Institute of Disease of the Chest and Hospital
5	Prof. Quazi Deen Mohammad	Principal, Dhaka Medical College
6	Dr. M Mostafa Zaman	National Professional Officer (NCD), World Health Organization
7	Prof. Fatema Parveen Chowdhury	Director, Institute of Public Health Nutrition
8	Prof M A Jalil Chowdhury	Professor of Medicine, Bangabandhu Sheikh Mujib Medical University
9	Prof. Saroj Kanti Majumdar	Director, National Institute of Preventive and Social Medicine
10	Prof. Dr. Khondaker Md. Shefyetullah	Line Director NCD and OPHI, and Director General of Health Services.
11	Dr. A K M Jafar Ullah	DPM ( Arsenic and NCD), Directorate General of Health services
12	Prof. Mujibur Rahman	Secretary of Scientific Affairs Bangladesh Society of Medicine, Dhaka
13	Prof. Ridwanur Rahman	Professor of Medicine, Shaheed Suhrawardy Medical College
14	Dr. Motiuddin Ahmed	Deputy Director and PM NCD, Directorate General of Health Services.
15	Prof. Mahmudur Rahman	Director, Institute of Epidemiology Disease Control and Research

## Appendix 7

### Current list of BanNet Members

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 Ophthalmology, Dhaka
15. Institute of Public Health Nutrition, Dhaka
16. Ahsania Mission Cancer Hospital, Dhaka
17. Centre for Chronic Diseases, ICDDR
- 18.

## Appendix 8

### Current ACS members

1. National Heart Foundation Hospital & Research Institute, Dhaka
2. Bangladesh Institute of Health Sciences, Mirpur Dhaka
3. BRAC Health Program
4. LAMB Hospital, Dinajpur
5. Zia Heart Foundation Hospital and Research Centre, Dinajpur
6. Ekhlaspur Centre of Health (ECOH), Chandpur
7. Centre for Cancer Prevention and Research, Gazipur, Dhaka
8. CANSUP

