National Cancer Control Strategy and
Plan of Action 2009-15

Line Director (Non-Communicable Diseases and OPHI)
Directorate General of Health Services
Ministry of Health and Family Welfare
## National Cancer Control Strategy Development Task Force

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## Editorial Board

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Draft Final of National Cancer Control Strategy and Plan of Action 2009-15

Foreword

At one time or another every family in Bangladesh would be touched by the shadow of cancer. Many people die from the disease and many more are still living with the after effects of cancer today. Groundbreaking advances in our understanding of cancer and its treatment are leading to significant advances in the quality of care and treatment which cancer patients receive.

The number of people contracting cancer continues to increase as our population ages and the consequence of successful treatment is that more people are living after cancer than ever before. And because cancer is no longer the death sentence it was, that serves to increase the importance of care for cancer survivors. Our next steps must reflect the the country attaches highest priority to combat this disease.

Our action on cancer must focus more on prevention and reducing the risk of people getting the disease. But this must be combined with greater responsibility from individuals to change aspects of their behaviour, such as smoking, to reduce their own risk. Early diagnosis is vital if we are to achieve a genuinely standard cancer service. Screening and early diagnosis which we are setting out in this plan will allow all of us faster and easier access to cancer management.

We must do more to ensure treatment is of the quality and this plan can act as a road map to a higher standard of care, available to all. Our investment in modern radiotherapy will ensure all of us have access to the best care when we are most in need. We are now in a position to make following pledges to patients:

1. More will be done to help to reduce your risk of developing cancer;
2. An increased likelihood of cancer being detected earlier;
3. Patient will have access to quality treatment at every stage of your cancer journey;
4. Whether anyone is living with or beyond cancer, information and support will be provided;
5. Irrespective of who or what patient’s background is, Govt. will work to give access to the best possible cancer experience and outcomes available in Bangladesh;
6. We will keep striving to improve the quality of cancer services available.

These pledges are at the heart of the Cancer Control Strategy. This strategy provides a strong foundation for how we will move forward.

At first I must show my gratitude to Dr. A.M.M Shawkat Ali, Honorable Advisor, Ministry of Health and Family Welfare for his advice and directives to develop this document. I would
like to thank everyone who has contributed to the development of this strategy, particularly members of the National Cancer Control Council and NCC Taskforce who devoted so much time, enthusiasm and creativity to developing the proposals which are central to the actions we are announcing today.

I want to take this opportunity to thank the thousands of healthcare professionals and managers involved in cancer. Their hard work and commitment has made possible the significant progress on cancer already achieved and will be vital as we now start to deliver the actions in this strategy.

This strategy seems to be ambitious programme for cancer services over the next few years and I look forward to working with all the stakeholders involved in cancer as we implement the actions set out today, making real our vision of building a standard cancer control service in Bangladesh.

Prof Md Abul Faiz
Director General
Directorate General of Health Services
and Chairman, NCCS Development Task Force
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Executive Summary

Cancer affects most of us at some point in our lives. We may be diagnosed with cancer ourselves or have relatives, friends or neighbours with the disease. More so than many other diseases, cancer conjures up deep fear and anxiety in most people in Bangladesh. Many are unaware how much can be done to reduce the risk of developing cancer and to successfully treat and care for those who develop the disease.

Cancer is one of the major causes of morbidity and mortality in among the non-communicable diseases in Bangladesh. Each year about 200,000 people develop cancer and 150,000 die of the disease. Cancer is the sixth cause of mortality in Bangladesh and 60% of cancer patients die within five years of diagnosis. The number of people developing cancer is expected to increase because our population is ageing. The number of new cases the system can expect to deal with by 2020 will represent an increase in huge number. We now have approximately 12,00,000 cancer patients.

At present we have enough knowledge to prevent at least one-third of cancers. Depending on the availability of resources, early detection and effective treatment of a further third of cancers are also possible. And when cancer cannot be cured, or held in remission, prevention and relief of suffering can greatly improve the quality of life of people with cancer and their families. The whole field of cancer is complex, and achieving what is possible poses significant challenges. Cancer includes over a hundred diseases with different causes and treatment methods. It can arise in any organ and at any age. Also, there is a wide range of organizations and health professionals, both government and non-government, involved in the many aspects of cancer prevention, detection, diagnosis, treatment and care.

Govt. of Bangladesh with technical support from WHO has formulated 'National NCD Strategy and Plan of Action' in 2007. Following that govt. is committed to formulate 'National Cancer Control Strategy and Plan of Action.' Govt. policy document Strategic Investment Plan and Revised Programme Implementation Plan of HNPSP (2003-10) includes reducing the incidence and impact of cancer as one of the health goals chosen for implementation. Along with other South-East Asian countries, we have accepted the conclusion of the World Health Organization (WHO) that development and implementation of a national cancer control strategy is the most effective way of reducing the incidence and impact of cancer. Govt. has formed a National cancer control Task force almost five years back but real initiative was taken by the honourable Health and Family Welfare Advisor Dr. AMM Shawkat Ali in 2008. Accordingly, NCCS Task Force has co-opted new members and finishes this document.
The Cancer Control Strategy is the first phase in the development and implementation of a
comprehensive and co-ordinated programme to control cancer in Bangladesh. The strategy
includes purposes, principles and goals to guide existing and future actions to control cancer.
It also includes objectives and broad areas for action. The next phase will involve identifying
priorities for action, planning implementation, and defining processes to manage, monitor
and review implementation.

The overall Purposes of the Bangladesh Cancer Control Strategy are to reduce the incidence
and impact of cancer and reduce inequalities with respect to cancer treatment. All activities
undertaken to meet these purposes to reduce health inequalities among our population;
ensure timely and equitable access for all Bangladeshis to a comprehensive range of health and
disability sustainable services, regardless of ability to pay; use an evidence-based approach,
reflect a patient-centered approach; actively involve consumers and communities; recognize
and respect cultural diversity; be undertaken within the context of a planned, co-ordinated
and integrated approach.

Vision of the strategy is 'Bangladesh will have a system of cancer control which will reduce
our cancer incidence, morbidity and mortality rates relative to the South East Asian countries
by 2015. Bangladesh people will know and practice health promoting and cancer-preventing
behaviours and will have increased awareness of and access to early cancer detection and
screening. Bangladesh will have a network of equitably accessible state-of-the-art cancer
treatment facilities and we will become a regionally recognized location for education and
research into all aspects of cancer.'

The Goals of the Bangladesh Cancer Control Strategy are to; a) Reduce the incidence of
cancer through primary prevention; b) Ensure effective screening and early detection to
reduce cancer incidence and mortality; c) Ensure effective diagnosis and treatment to reduce
cancer morbidity and mortality; d) improve the quality of life for those with cancer and their
family through support; e) rehabilitation and palliative care; f) improve the delivery of
services across the continuum of cancer control through effective; g)planning, co-ordination
and integration of resources and activity, monitoring and evaluation; h) improve the
effectiveness of cancer control in Bangladesh through research and surveillance.

Cancer Control Continuum is a well-designed, systematic, equitable, efficient and
harmonized evidence-based approach aims to decrease incidence and impact of cancer
through translating knowledge into practice. The existing knowledge about the causes of
cancer and about interventions to prevent and manage cancer is extensive. Human exposure
to risk factors is the resulting from a wide range of behavioural, social, economic,
environmental and cultural factors. Efforts to reduce the incidence of these lifestyle-related
cancers require a comprehensive approach, such as that described in the Ottawa Charter for
Health Promotion (WHO), 1986.
Promoting Health and Preventing Cancer

According to the WHO (2002), cancer prevention should be a key element in all cancer control programmes. Cancer prevention focuses not only on factors that increase a person’s chances of developing cancer (such as smoking, chewing betel leaf and nut, Jarda), but also on protective factors such as a healthy diet and physical activity. The diet habit of Bangladeshi people such as Rice, Dal, fish and vegetables having anti-carcinogenic property. The primary prevention will be given more importance as because this is key of any cancer prevention in any in any developing country like Bangladesh. Prevention services include the use of health protection, health promotion and disease prevention strategies to alert the population to cancer risks, promote healthier lifestyles and create healthier environments that aim to reduce potential cancer risks.

Early Detection and Cancer Screening

Early detection means detecting cancer prior to the development of symptoms or as soon as is practicable after the development of symptoms. Its aim is to detect the cancer when it is localized to the body organ of origin, before it has time to spread to other parts of the body. It is one of the parts of a wider strategy including diagnosis, treatment and follow-up. Early detection of cancer can involve strategies to promote early presentation, including education about signs and symptoms and improved access to primary care. Aggressive efforts must be undertaken with the help of all the govt. such as health workers both from health and family planning and NGOs and voluntary workers to prevent and propagate early symptoms. All suspect cases must have proper access to screening procedure and if proved must be helped by the institutes/oncology departments.

Early detection of cancer prior to the development of symptoms occurs through Screening, which is a process whereby people who have no symptoms are invited (either directly or through publicity) to undergo a test or procedure, usually at regular intervals. In some instances, the purpose of screening is to detect cancer at an early stage of development; in others, cancer screening identifies precursors of cancer, the treatment for which can reduce the risk of cancer developing (WHO 2002).

Diagnosis and Treatment

The WHO (2002) describes cancer diagnosis as the first step to cancer management. It involves a combination of clinical assessment and a range of investigations, such as endoscopy, imaging, histopathology, cytology and laboratory studies. Diagnostic tests are also important in identifying the extent to which the cancer may have spread (known as ‘staging’). Cancer staging is necessary for determining options for treatment and assessing likely prognosis. Treatment of cancer is complex, involving a range of therapies. These include surgery, radiation, chemotherapy or hormonal therapy, or a combination of these. The aim of
treatment is to cure (ie, to result in normal life expectancy), or to prolong and improve the quality of the life of those with cancer (WHO 2002), if cure is not possible.

**Palliative care**

Palliative care is ‘An approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual’ (WHO 2002). The quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.

**Supportive care and Rehabilitation**

Supportive care and rehabilitation is defined as: the provision of the necessary services, as determined by those living with or affected by cancer, to meet their physical, social, emotional, nutritional, informational, psychological, sexual, spiritual and practical needs throughout the spectrum of the cancer experience (Canadian Strategy for Cancer Control 2002). These needs may occur during diagnosis, treatment or follow-up after treatment, and include issues of survivorship, recurrence of the disease and, in some cases, death.

When someone develops cancer, its impact extends beyond the physical effects of the disease to include psychological, social, economic, sexual and spiritual consequences. Coping with the disease and its treatment involves a range of issues, which impact on those with cancer as well as their families. There is growing evidence that supportive care and rehabilitation can buffer cancer patients and their caregivers from psychiatric, psychological and social morbidity.

**Cancer Control Surveillance**

Cancer control surveillance involves the routine and continuous collection of information on the incidence, prevalence, mortality, diagnostic methods, stage distribution and survival of those with cancer and aspects of the care received. Surveillance is a fundamental element of the Cancer Control Strategy. The data collection required for surveillance requires the collaboration of service providers and, where necessary, continuing legislative support. A fully functioning and dedicated cancer registry with appropriate expertise is a cornerstone of cancer-control surveillance.
Cancer Control Research

Cancer control research seeks to identify and evaluate the means of reducing cancer morbidity and mortality and of improving the quality of life of people living with, recovering from or dying of cancer. Research is needed across the spectrum of cancer control to provide the basis for continual improvement. As identified by the WHO (2002), the major categories of research are: laboratory; epidemiological; clinical; psychosocial and behavioral; health systems and health policies.

Bangladesh Scenario

Bangladesh is still lacking a national cancer registry. But according to Bangladesh Bureau of Statistics cancer is the sixth leading cause of death in Bangladesh (BBS, 2004). A few decades ago, a hospital based registry was initiated at 196 to 1971 at Radiotherapy Department of Dhaka Medical College, and later was abandoned. Years back, hospital based cancer registry has been started at National Institute of Cancer Research Hospital and Oncology Department of Bangabandhu Sheikh Mujib Medical University. International Agency for Research on Cancer (IARC) has projected that death from cancer in Bangladesh is 7.5% in 2005 and it will be increased up to 13% in 2030. IARC has projected (2002) the death from 10(ten) leading cancer in case of females are mouth and oropharyngeal cancer, cervical, breast, esophageal cancer, ovarian cancer, lung cancer, lymphoma, stomach, liver, colo-rectal cancer and in case of males are mouth and oropharyngeal, lung cancer, esophageal cancer, lymphoma, stomach, bladder, liver cancer, leukaemia, colorectal cancer and prostate. A recent WHO study estimates that there are 49,000 oral cancer, 71,000 pharynx & laryngeal cancer and 196,000 lung cancer cases in Bangladesh among those aged 30 years or above. 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 ((Impact of Tobacco–related Illness in Bangladesh, WHO 2005).

Economic Burden

Economic impact of cancer is huge. Bangladesh hospital cancer registry showed that most of the cancer patient’s age group is between 30-65 years, which is around 66%. These people are the main workforce structure of a country. It has gigantic economic impact. It has direct and indirect cost, which needed to be measure urgently. As a example we may look for the WHO study that revealed the annual cost of tobacco-related illnesses in Bangladesh as attributable to tobacco usage is estimated to be 45 billion taka considering that only a quarter of the patients with tobacco-related illnesses receive hospital care. On the other hand, the total annual benefit from tobacco sector is estimated to be 24.8 billion taka as tax revenue on the domestic consumption of tobacco (20.3 billion taka) and wages in tobacco production (4.5 billion taka). The cost of tobacco usage to the country thus outweighs the benefit from revenue and wages by 20.3 billion taka per annum (equivalent to US$ 344 million). It indicates that Bangladesh economy would greatly benefit from controlling the usage of tobacco.
tobacco.

Bangladesh is not able to provide the latest treatment facilities for cancer management and government’s support inadequate. Every year Bangladesh is losing huge amount of foreign currency for this purpose. If govt. would invest one quarter of this amount for next four years overall cancer management could reach at South East Asian regional level.

Cancer Control Matrix

A cancer matrix and plan of action has proposed with goals, objectives and areas of action. Plan of Action will be incorporated under the Operational Plan of Line Director (Non-communicable Disease)

Road Map for Cancer Control

A detailed activity and time frame has been attached in the annexure 2

Policy Indicators

Some policy indicators have been set for monitoring and evaluating progress of the taken initiative.

Conclusion

A broad participatory process that involves key stakeholders from the beginning is central to the development and implementation of an effective cancer control. In resource constrained country like Bangladesh, it is more likely to be implemented if it includes fewer, yet sustainable interventions in line with evidence-based priorities, ranging from prevention to end-of-life care, with measurable process and outcome objectives that can be monitored and evaluated if basic information systems are in place. For example, prevention strategies (such as tobacco control and hepatitis B immunization), community based palliative care for cancer and HIV/AIDS patients, and treatment interventions linked to early diagnosis (awareness of early signs and symptoms) of a few cancer types (such as cervical and breast cancers) would be key feasible interventions.

Priority interventions should be implemented using a stepwise approach, as recommended in this document, focusing initially on what can be done with better organization of available resources in a target area where there is high potential for success. As results are successfully demonstrated, more resources can be justified and the programme can be expanded.

Considering the above facts and findings Govt. should consider as Cancer control should be the part of a pro-poor strategy of Bangladesh
Introduction

Cancer, its prevention, diagnosis and treatment are major challenges for our society. Cancer is an illness that afflicts large numbers of people, from all backgrounds, and is feared by individuals and families alike. Yet there is much reason for optimism; research holds out the possibility of major strides forward in prevention and cure in the coming decades. We are witnessing major improvements in the treatment of many types of cancer, but these welcome improvements will also place substantial and diverse pressures on our health care system.

The ageing of our population will result in an increasing number of people who will develop cancer in Bangladesh in the coming days. It is self-evident that the current services will not be in a position to meet the substantial demand for treatment, cure and care. Keeping pace with these demands will require a major government commitment to cancer prevention and curative services in the coming years, which in turn will require the earliest possible decisions on investment, human resource planning and the organization of services. Our aim is to control major risk factors, and deliver a universal, quality-based and timely service, in line with the best practices that are currently available in South-East Asian countries.

Cancer

Cancer is a generic term for a group of more than 100 diseases that can affect any part of the body. One defining feature of cancer is the rapid creation of abnormal cells which grow beyond their usual boundaries, and which can invade adjoining parts of the body and spread to other organs, a process referred to as metastasis. Metastases are the major cause of death from cancer.

Cancer intrudes one and all – the rich and poor, the men, women and children, the young and old– and represents a huge burden on patients, families and societies. Cancer is one of the top causes of death in the world, particularly in developing countries.

What causes cancer?

Cancer occurs because of changes of the genes responsible for cell growth and repair. These changes are the result of the interaction between genetic host factors and external agents which can be categorized as: more than 50% of cancer can be prevented by a healthy diet, physical activity and not using tobacco. Tobacco use is the single largest preventable cause of cancer. Tobacco use causes cancer of the lung, throat, mouth, pancreas, bladder, stomach, liver, kidney and other types; Environmental tobacco smoke (Second Hand Smoke) causes lung cancer.
Twenty percent of cancers worldwide are due to chronic infections, mainly from hepatitis B viruses HBV (causing liver), human papilloma viruses HPV (causing cervix), Helicobacter pylori (causing stomach), schistosomes (causing bladder), the liver fluke (bile duct) and human immunodeficiency virus HIV (Kaposi sarcoma and lymphomas). Contamination of food by mycotoxins such as aflatoxins (products of Aspergillus fungi) causes liver cancer. Physical carcinogens such as ultraviolet (UV) and ionizing radiation, chemical carcinogens such as asbestos and tobacco smoke. There is solid evidence about alcohol causing several cancer types such as oesophagus, pharynx, larynx, liver, breast, and other cancer types.

How does cancer develop?

Cancer arises from one single cell. The transformation from a normal cell into a tumour cell is a multistage process, typically a progression from a pre-cancerous lesion to malignant tumours. The development of cancer may be initiated by external agents and inherited genetic factors. Ageing is another fundamental factor for the development of cancer. The incidence of cancer rises dramatically with age, most likely due to risk accumulation over the life course combined with the tendency for cellular repair mechanisms to be less effective as a person grows older.

Quick cancer facts

Cancer is one of the leading causes of death worldwide. The cancer burden reflects not only trends in risk but also the impact of demographic factors. As the population has grown, so the number of adult cancer or deaths has increased steadily, and this increase in burden is projected to continue at least next two decade. The ageing of the population – reflected in longer life expectancy – will also have an increasing effect. From a total of 58 million deaths worldwide in 2005, cancer accounts for 7.6 million (or 13%) of all deaths. But unfortunately, more than 70% of all cancer deaths in 2005 occurred in low and middle-income countries. Deaths from cancer in the world are projected to continue rising, with an estimated 9 million people dying from cancer in 2015 and 11.4 million dying in 2030. The most frequent cancer types worldwide are: among men (in order of number of global deaths): lung, stomach, liver, colorectal, oesophagus and prostate, and among women: breast, cervical, lung, stomach, and colorectal.
Is cancer preventable?

With our present knowledge over more than 50% of all cancers can be prevented. Depending on the resources, early detection and effective treatment of a further third of cancers are also possible. While some cancers cannot be cured or held in remission, with good palliative care, relief of suffering can greatly improve the quality of life of people with cancer and their families.

The Cancer Control Continuum

Cancer Control Continuum is a well-designed, systematic, equitable, efficient and harmonized evidence-based approach that aims to decrease incidence and impact of cancer through translating knowledge into practice. The existing knowledge about the causes of cancer and about interventions to prevent and manage cancer is extensive.

Human exposure to risk factors includes a wide range of behavioural, social, economic, environmental and cultural factors. Efforts to reduce the incidence of these lifestyle-related cancers require a comprehensive approach, such as that described in the Ottawa Charter for Health Promotion (WHO), 1986.

Basic Approaches to Control Cancer

Prevention means eliminating or minimizing exposure to the causes of cancer and includes reducing individual susceptibility to the effect of such causes. This approach offers the greatest public health potential and the most cost effective long term method of cancer control. According to the WHO (2002), cancer prevention should be a key element in all cancer control programmes. Cancer prevention focuses not only on factors, which increase a person’s chances to develop cancer (such as smoking), but also on protective factors such as a healthy diet and physical activity. Up to one third of the cancer burden could be reduced by implementing cancer-preventing strategies.

Prevention includes health protection, health promotion and disease prevention strategies to alert the population to promote healthier lifestyles and create healthier environments that aim to reduce potential cancer risks. The prevention workforce, which involves both government and non-government personnel, includes public health, research, health
promotion, and primary health care and community providers. A number of toolkits were developed by DGHS under HNPSP is to promote essential services. The toolkit will be amended to reflect the recommendations and approaches of the Bangladesh Cancer Control Strategy.

Primary prevention aims to reduce the incidence of disease by risk factor modification. A risk factor for a disease is an attribute or exposure that increases the probability of getting the disease. As exogenous risk factors including personal habits play a major role in the aetiology of cancer, modifying risk factor exposure may prevent many cancers. Among the activities for prevention, emphasis should be placed on:

- Tobacco control
- Health education relating to sexual and reproductive factors associated with cancer
- Healthy diet
- Physical activity

**Tobacco**

Tobacco smoke contains approximately 4000 chemicals of which at least 438 can cause cancer. Tobacco is the single most important modifiable risk factor (30%) for cancer. Unfortunately in Bangladesh, cigarette production has grown tremendously since 1980, and bidi production has grown even faster.

A WHO study shows that twenty million people in Bangladesh use tobacco in some form, including five million women, and 57,000 people die every year due to tobacco-related diseases. Smoking prevalence in Bangladesh is 41% among men aged 15 years and over (50.1% among men aged 30 years and over). In women it was 1.8% among those aged 15 years and over (3.1% among women aged 30 years and over). In addition, 14.8% of men 15 years and older (22.4% of men 30 years and older), and 24.4% of women 15 years and older (39% of women 30 years and older) currently use smokeless tobacco in chewable form such as Jarda and sada patha with betel and betel nut etc. Altogether, 62% of men and 41% of women (52% sexes combined) aged 30 years and above were found to either smoke or chew tobacco at the time of the survey. Data from these surveys indicate that tobacco use prevalence is higher among males than females and among older age groups than younger age groups.

Nearly half of school students and nearly 4/5th of health students are exposed to second-hand smoke in Bangladesh. The burden of eight tobacco-related diseases (ischemic heart disease, lung cancer, stroke, oral cancer, cancer larynx, chronic obstructive pulmonary disease,
Pulmonary tuberculosis, and Buerger’s disease) among the people aged 30 and above were determined. It is also estimated that they are responsible for 16% of all deaths and 9% of all deaths are attributable to tobacco (Impact of Tobacco-related Illness in Bangladesh, WHO 2005).

Spread of tobacco addiction, promoted by commercial interests, is responsible for the 80-90% of lung cancer and 90% of oral cancer. Tobacco smoking causes cancer of the lung, larynx and oesophagus. Smoking is also associated with cancers of the pancreas, bladder, pelvis of the kidneys, ureter and squamous cell carcinoma of the uterine cervix. Tobacco chewing is the most important risk factor for cancer of the oral cavity. Inhalation of secondary smoke, known as “passive smoking” is a unique feature of smoking. It results in increased risk of cancers among nonsmokers exposed to tobacco smoke.

Tobacco control involves health promotion and education, advocacy, support for cessation, community mobilization, taxation and other fiscal measures, livelihood alternatives, regulation, legislation and enforcement. Policy-level interventions would include levy of taxes (to raise prices of tobacco products and act as a disincentive for purchase), regulation of tobacco products (for constituents, emissions, health warnings, and misleading health claims) and measures to reduce supply (ban on sale to youth, curbs on smuggling, and programmes to aid tobacco farmers and workers to switch over to alternative livelihoods).

Interventions at community level would involve programmes for empowering people, especially vulnerable sections, with the knowledge, motivation and skills required to abstain from or abandon the use of the tobacco habit. This includes creation of suitable environments to stimulate, support and sustain healthy lifestyle choices such as tobacco free norms at schools, worksites and homes.

Govt. of Bangladesh has already banned Tobacco smoking in the Public Places. It must be strictly followed. It is very important to increase taxes on Tobacco products. Eventually Bangladesh should go for ban on tobacco import and tobacco industry. At the level of the individual, the interventions would focus on behaviour change, especially aimed at tobacco cessation. This requires the availability of services ranging from counseling to de-addiction therapies, and an affordable supply of pharmacological agents for those who need it.

Health professionals have a fundamental role to play in tobacco control. They have the opportunity to help people change their behaviour and they can give advice, guidance and answers to questions related to the consequences of tobacco use. Studies have shown that even brief counseling by Health Professionals on the dangers of tobacco use and the importance of quitting is one of the most cost-effective methods of reducing tobacco use. They can also forewarn children and adolescents of the dangers of tobacco, and prevent children picking up the tobacco habit.
Framework Convention on Tobacco Control (FCTC)

May 21st, 2003 was a historic day for global public health. At the 56th World Health Assembly, WHO’s 192 Member States unanimously adopted the world’s first public health treaty, the WHO Framework Convention on Tobacco Control (FCTC) and it came in force on 27th February 2005. Bangladesh is the first country to ratify it. The FCTC sets out guidelines for various national and international measures that would encourage tobacco users to quit and restrain non-users from taking to the habit. Bangladesh has already enacted Tobacco Control Act and regulations.

Tobacco control is affordable and effective for almost all countries. It will also contribute positively to the achievement of Millennium Development Goals (MDG). The challenge is to bring these two elements together. The MDGs have become the framework within which much development assistance is currently organized. They are current ‘Gold Standard’ which against which progress is evaluated. It is therefore important that tobacco control is explicitly included within their purview.

Currently, Bangladesh is overburdened with tobacco-related illnesses, for about half of all cancers in men and one fourth of all cancers among women are due to tobacco use. Most victims of heart attacks aged less than 40 years are heavy smokers. It is the poor who smoke the most in Bangladesh and bear most of the economic and disease burden of tobacco usage.

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<td>● Technical assistance</td>
<td></td>
</tr>
<tr>
<td>● Financial support for FCTC implementation (bilateral and multilateral channels) Monitoring</td>
<td></td>
</tr>
</tbody>
</table>
Sexual and Reproductive Factors

Sexual and reproductive factors are associated with cancer of the uterine cervix and breast. Sexual behaviour factors, like young age at first sexual activity, multiple sexual partners and poor sexual hygiene, are associated with cancer of the uterine cervix. Human Papilloma Virus (HPV) has now been identified as the etiological agent responsible for cervical cancer. HPV prevalence increases with high risk sexual behaviour and poor sexual hygiene. Late age at marriage, nulliparity, and late menopause have been linked to breast cancer. HPV

Education regarding sexual hygiene and safe sexual behaviour may be provided for prevention of cancer cervix. Safe sexual behaviour protects women from the risk of cervical cancer by preventing infection with HPV. Breast cancer is not preventable to any large extent. Early detection of breast cancer is the main strategy for improving survival in breast cancer.

Diet

Various studies in the past two decades suggest the role of diet in human cancers. Unhealthy diet is responsible for 35% of over all cancers. Changing dietary patterns will lead to increased contribution of diet in cancer causation in Bangladesh. It is generally agreed that the composition of diet is an important preventable risk factor. Preserved foods and high intake of alcohol increases the risk of cancer of the oral cavity, pharynx, larynx, oesophagus, liver and breast. Evidence that excessive fat in the diet may induce some cancers. Increased intake of fruits and vegetables may decrease the risk of oral, oesophagus, gastric and colorectal cancer. High fibre diet, and foods rich in vitamin A (betacarotene) & vitamin C appear to have cancer prevention capacity. Limit consumption of salted foods

Avoid being underweight or overweight and maintain body mass Index (BMI) in range of 18.5 to 25 kg/m² to avoid wt gain. All individual should be encouraged to adhere to a healthy eating plan. Fat intake between 15 to 30% of total energy intake, saturated fats <10%, carbohydrates between 55 to 75% of daily intake free (or added) sugars <10%, have a diet at least 400g/day of fruit and vegetables. So, dietary modification is also important.

Physical Activity

Physical activity is an important determinant of body weight. Physical activity and physical fitness are important modifiers of mortality and morbidity related to overweight and obesity. To promote at least 30mins of moderate intensity physical activity on most days or a total of 1hour/day, such as, walking. Other recommended activities may be jogging, cycling, swimming, etc. recommendation should be culturally acceptable and respect religious proscriptions.
Occupation

Occupational cancers constitute 5-10% of all cancers. Increased risk of lung cancer has been seen in workers engaged in manufacture of asbestos, rubber tyres, textile workers, ship and dockyard workers and wood workers. Higher risk of bladder cancer was seen in workers of chemical and pharmaceutical plants. Limiting exposure to sunlight and other potentially carcinogenic substances through protective gear, frequent rotation of workers; mechanized handling of such chemicals and similar mechanisms may help reduce cancers from occupational exposures.

Infection

Infections with various agents are implicated in the aetiology of 15% of all cancers. Control of cancers caused by or associated with infections depends upon success in combating the infection concerned. Measures include eliminating reservoirs and sources of infection, preventing transmission, increasing host immunity through vaccination, and effective treatment of those infected. Infections with certain viruses are associated with cancer; for example, liver cancer and the hepatitis B virus, and cancer of the cervix and the human papilloma virus (HPV). Immunization against HPV and infection Hepatitis B is helpful to prevent such cancers.

<table>
<thead>
<tr>
<th>Infective agent</th>
<th>Cancer</th>
<th>Prevention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Human Papilloma virus</td>
<td>Cancer of the Uterine Corvix, Cervical carcinoma, Anal cancer, Pharyngeal cancer, Oral cancer</td>
<td>Safe sexual practices, avoiding multiple sexual partners</td>
</tr>
<tr>
<td>Hepatitis B and Hepatitis C virus</td>
<td>Hepaticellular carcinoma can occur from chronic active infection</td>
<td>Universal precautions, Safe sexual practices, Vaccine for Hepatitis B</td>
</tr>
<tr>
<td>Epstein-Barr virus</td>
<td>Burkitt's Lymphoma, Nasopharyngeal carcinoma</td>
<td>No specific interventions</td>
</tr>
<tr>
<td>Schistosoma haematobium</td>
<td>Bladder cancer</td>
<td>Preventing water pollution with human waste, Treating patients, Controlling Intermediate hosts (snails)</td>
</tr>
<tr>
<td>Chlamydia psittaci</td>
<td>Cholangiocarcinoma</td>
<td>Preventing water pollution with human waste, Treating patients, Controlling Intermediate hosts (snails, fish), Avoid eating raw fish</td>
</tr>
<tr>
<td>Helicobacter Pylori</td>
<td>Stomach cancer</td>
<td>Treating patients with Symptomatic infection</td>
</tr>
</tbody>
</table>
Alcohol

Excessive alcohol consumption is associated with cancers of the mouth, pharynx (excluding nasopharynx), larynx, oesophagus and liver. The risk relationship between cancer and alcohol is nearly a linear relationship with the risk increasing with increasing amount of alcohol consumed. Co-existence of tobacco habits can have a multiplicative effect on development of cancer. Control of alcohol requires actions similar to those for tobacco control. The actions should be targeted towards individual and community and include taxation, general public education and encouraging highly vulnerable groups like young people to avoid starting consumption etc.

Early Detection and Cancer Screening

Early detection means detecting cancer prior to the development of symptoms or as soon as is practicable after the development of symptoms. Its aim is to detect the cancer when it is localized to the body organ of origin, before it has spread to other parts of the body. The importance early detection is detecting cancer at a stage in its natural history where the chance of cure is high. It is only part of a wider strategy including diagnosis, treatment and follow-up, its effectiveness is dependent on the sustainability of other services along the cancer control continuum (WHO, 2002). Another third of the cancer burden could be cured if detected early and treated adequately.

Early detection of cancer can involve strategies to promote early presentation, including education about signs and symptoms and improved access to primary care. Such strategies may also include endeavours to dispel myths, fears and negativity about cancer that may influence the likelihood of seeking medical advice.

Increasing awareness of the signs and symptoms of cancer contributes to early detection of the disease. Where tests for cancer of specific sites are available and facilities are appropriate, screening of apparently healthy individuals can disclose cancer in early or precursor stages, when treatment may be most effective. Early detection is only successful when linked to effective treatment. All people should be aware of these warning signs. However, any such sign not responding to appropriate treatment warrants immediate medical attention and prompt management.

Many cancers that are potentially curable at early stages are detected only in advanced stages. Diagnosis of such cancers at a stage where treatment is effective could have a major impact on the disease outcome. Certain symptoms and signs may be early indicators of some cancers. One means to that end is educating people regarding early signs of the disease. These include:
Early diagnosis of cancers that are curable if detected early (cervix, breast, mouth) can be promoted in Bangladesh using public education and training of primary health care workers. Health professionals should be trained for early detection and prompt referral of suspected cases.

Early detection of 3 common forms of cancer such as oral, breast and cervix has been attempted by the Government of Bangladesh under HNPSP (2003-2010). All of them are curable and hence would demand specialized treatment facilities. They also mandate good supportive and rehabilitative facilities in the country.

Screening

A second approach to early cancer detection is through population screening; namely, the identification of people with asymptomatic disease by applying simple tests. Cancer screening should be applied only when its effectiveness has been demonstrated; programmes should be introduced only when there is adequate manpower to perform the tests, with mechanisms to achieve adequate population coverage, facilities for diagnosis as well as treatment and follow-up of individuals with abnormal test results, and when the extent of disease in the population justifies the effort and cost.

Screening is the presumptive identification of unrecognized disease or defects by means of tests, examination or other procedures that can be applied rapidly. Screening is based on the concept that there is a detectable pre-clinical phase of the disease being screened, and detection at this stage markedly alters disease prognosis. The success of screening depends on having sufficient numbers of trained personnel to perform the screening tests with adequate coverage of target populations, and on the availability of facilities that can undertake subsequent diagnosis, treatment and follow-up. The target disease should be a common form of cancer with high associated morbidity and mortality, and test procedures should be acceptable, safe and relatively inexpensive. Screening is recommended for cancers of uterine cervix and breast, only if resources permit.
Screening is the application of a relatively simple and inexpensive test to asymptomatic subjects to classify them as being likely or unlikely to have cancer. A screening test in itself will not prevent cancer; it needs to be followed up through a systematic approach. Opportunistic screening or case finding can be attempted, but may not result in significant reduction in the incidence of cancer in a population as the coverage will be poor.

However, it might help to increase the awareness and produce the human resources needed for future programmes, which include population-based screening in an organized manner with proper mechanisms for call–recall and quality control.

It is the identification by means of tests of people with early cancer or pre-cancer before signs are detectable. Screening tests are available for breast cancer (Mammography) and Cervical cancer (Cytology tests/ VIA). Currently, screening can only be advocated for cancers of the cervix and breast. It is important that such programmes concentrate on those at greatest risk of invasive cancer, for cervix cancer women aged 35–60 years, for breast cancer women aged 40 years or more (but for mammography programmes those aged 50–69 years). A project has set up to screen Cervical and Female Breast Cancer. Cervical Cancer has screened through VIA and Breast Cancer with clinical breast examination in 44 districts with the support of UNFPA. Already 100,000 women have screened with VIA programme through this project. and among them, 5% is VIA positive, 50% of them are CIN/ Cervical cancer (Prevention of Cervical Cancer in the Asia Pacific Region: Progress and Challenges on HPV Vaccination and screening, Vaccine 2008;26 (Supple 12).

At present, mammography as a screening tool is not applicable to Bangladesh. Breast cancer awareness can be propagated along with provision for fine-needle aspiration cytology, pathology services and surgical interventions.

- Once-a-year clinical breast examination can be made feasible for women above the age of 40 years, which can be carried out by general practitioners or trained health workers.
- Cancers in accessible parts of the body like the oral cavity may be detected at an early stage or even in a precancerous stage through simple inspection and examination, which can be practiced by a trained health care worker.
- Self-examination of the oral cavity (Mouth Self Examination) and breast (Breast Self Examination) can be useful methods and each can be propagated widely as a strategy.

**Diagnosis**

**Diagnostic Methods**

Cancer diagnosis calls for a combination of careful clinical assessment and diagnostic investigations. Once a diagnosis is confirmed, it is necessary to ascertain cancer staging to
evaluate the extension of the disease and be able to provide treatment accordingly. Cancer
treatment aims at curing, prolonging useful life and improving quality of life. Treatment
services should give priority to early detectable tumours and potentially curable cancers. In
addition, treatment approaches should include psychosocial support, rehabilitation and close
coordination with palliative care to ensure the best possible quality of life for cancer patients.

The WHO (2002) describes cancer diagnosis as the first step to cancer management.
It involves a combination of clinical assessment and a range of investigations, such as
endoscopy, imaging, histopathology, cytology and laboratory studies. Diagnostic tests are also
important in identifying the extent to which the cancer may have spread (known as ‘staging’).
Cancer staging is necessary for determining options for treatment and assessing likely
prognosis.

The diagnostic procedures in oncology are for diagnosis, determining the extent of the
disease, deciding the treatment options available and evaluating the patient during follow up.
Clinical evaluation is the first and the most important step in the diagnosis of malignancy. It
requires the health professional to be alert to the early warning signals. A thorough history
and clinical examination of any suspicious symptom or sign is mandatory. Clinical suspicion
of malignancy can be confirmed by various diagnostic methods described below:

**Radiological Evaluation**

Various imaging methods are X-ray, Fluoroscopy, Mammography, Ultrasound, C.T.Scan,
Magnetic Resonance Imaging, Nuclear Medicine: Positron Emission Tomography, Radio
nuclide scan and Radioactivity uptake studies e.g. Thyroid, Bone.

**Biochemical Evaluation**

This is generally done to know the organ functions, like liver function tests, and renal
function tests.

**Endoscopy**

In oncology endoscopy is useful to Detect the site of primary cancer, Evaluate the extent of
lesion, Perform biopsy and Perform certain therapies like endoprosthesis for oesophageal
stenosis, laser therapy, etc.

**Pathological Evaluation**

Pathological evaluation is an important method for confirmation of clinical diagnosis and
includes Haematological Examination: Examination of peripheral blood smear and bone
marrow; Cytological Examination such as Exfoliative cytology: examination of exfoliated
cells; e.g. female genital tract, oral cavity, urinary tract (urine examination), gastrointestinal lesions (gastric lavage) etc. Fine Needle Aspiration Cytology (FNAC): to obtain material from organs that do not shed cells spontaneously. Example: Breast, Thyroid, etc. Aspiration of body fluids: to rule out or confirm malignant effusions. Example: pleural fluid, peritoneal fluid. Biopsy: A small chunk of tissue is removed from the suspicious site and subjected to histopathological examination. It may be: Excisional biopsy in small tumours, Incisional/ Punch biopsy in skin and mucosal lesions, Cone biopsy in uterine cervix, Needle biopsy in bone marrow, solid tumours of abdomen and pelvic organs.

**Immunological Evaluation**

Some cancers release biologic or biochemical substances, in the form of hormones, enzymes, and antigens, into the circulation. The measurement of these substances in blood can be useful in the detection and diagnosis of some types of cancers. Such chemicals are called tumour markers.

**Staging of cancer**

Staging is used to assess the extent of the spread of the disease in the body. It is an indication of prognosis, and is used as a guide to determine the type and extent of treatment required. TNM classification: The TNM classification for tumours has been adopted by the International Union against Cancer, and has been extended for many sites of cancer. This is a detailed clinical staging, which is arrived at by the clinician by ascertaining the extent of the primary tumour (T), lymph node involvement (N), and presence of metastases (M). The information so obtained is scored. The details of scoring are specific to each type of cancer. Other systems of staging include the FIGO (International Federation of Gynaecology and Obstetrics) staging for cancers of the uterine cervix and body of the uterus, and the Duke’s system of staging for cancer of the rectum.

**Infrastructure for diagnosis**

Diagnostic infrastructure in the country is limited. Important early diagnostic facilities like cytology are available only in very few rural places. This imposes a severe constraint in the detection and diagnosis of cancer in the periphery which leads to an exodus of patients to major cities even for this kind of service. There is an empirical picture that more than 90% microscopic diagnosis of cancer takes place mostly in major cities of the country. But we should remember that it represents only 5% of the cancers. Apart from this gap in the diagnosis, lack of cytological and pathological facilities and basic diagnostic investigations like x-rays, endoscopy and ultrasonography is still also a constraint. An un-estimated number of cancers should be vanquishing in rural areas without either diagnosis or treatment. This major gap has to be rectified for any successful cancer control effort.

**Treatment**
Principles of Treatment

The primary goals of cancer treatment are cure ideally, prolongation of useful life if possible, and improvement in quality of life always. Treatment of cancer is complex, involving a range of therapies. The principal methods of treatment are surgery, radiotherapy, and chemotherapy (including hormonal manipulation). Each of these modalities has a well-established role, and can be used for cure or for palliation. Appropriate combination and sequencing of these modalities can be adopted for specific cancers. Mechanisms should be set up to decide on guidelines for integrating treatment resources with early diagnosis and screening programmes, and for providing best practicing guidelines for the most important cancers in Bangladesh.

Curative treatment involves surgery, radiation, chemotherapy, hormone therapy, immunotherapy or some combination of these modalities. Some of the most common cancer types such as female breast cancer, cervical cancer, majority of the head-neck cancers and colorectal cancer, state-of-the-art therapy yields a 75% or greater 5-year survival rate. On the other hand, survival for patients with cancers of pancreas, liver, stomach and lung is less than 15%. When detected early and treated according to best evidence. Fundamental for adequate treatment is an accurate diagnosis by means of investigations involving imaging technology (ultrasound, endoscopy, radiography) and laboratory (pathology).

Though simple forms of cancer treatment have to be provided at a conservative level in medical colleges and district level hospitals, the high technology required for some forms of cancer therapy heighten the desirability of concentrating such treatment in a few places in the country. The table below shows the lists of curable cancers.

Table: Curable Cancers for which treatment is justifiable
Major reliance on treatment as a cancer control strategy, however, favours an expensive and narrow approach to the problem. High technology for cancer treatment imposes a financial investment, tends to select patients inequitably, and detracts from appropriate emphasis on prevention. In the developing as well as developed world, focus on treatment as the main thrust against cancer is a pro-poor strategy.

Care for cancer patients typically starts with recognition or suspicion of the disease by the patient and primary health care worker. Specialized services for diagnosis and treatment and referral, if appropriate, to a centre for cancer treatment comprise the next element of the system.

**Surgery**

Surgery plays an important role in the diagnosis, staging and treatment of localized cancers. Where other modalities form the mainstay of treatment, surgery can contribute through removal of tumour masses, palliation and treatment of some complications. Surgery requires the support of other specialties including anaesthesiology, blood transfusion services, pathology (specially onco-pathology) and critical care nursing. In early stage solid tumours, surgery that encompasses a sufficient margin of normal tissue is curative. These include early stage cancers of the breast, oral cavity, uterine cervix, colon, prostate and the skin. Surgery is also used post chemotherapy or radiotherapy to provide local cancer control and better chances for adjuvant therapy. In certain solid tumours, surgery is critical for reducing bulk
Surgery is valuable in oncology emergencies, to relieve bowel obstruction, promote cessation of bleeding, close perforations, relieve compression, and drain ascites or pleural effusions. Apart from treatment, surgery for reconstruction and rehabilitation can improve function and cosmetic appearance and enhance quality of life for patients.

**Radiotherapy**

Radiotherapy is one of the most important methods of curing local cancer. Around 60-70% cancer patients require radiotherapy for curative management. Radiotherapy is the method of treating diseases with "ionising radiation". The ionising radiation causes damage to certain vital structures within the cells. The cells are either damaged or are rendered incapable of further multiplication. These damaging effects on normal cells are less and reversible whereas the damage in the abnormal cell is irreversible. This differential is the principle of radiotherapeutic treatment.

Radiotherapy requires high technology equipment and skilled technicians, available only in tertiary centres. Radiotherapy may be teletherapy (administered from a distance) or brachytherapy (treatment with radioactive substances within body cavities or tissues). Teletherapy may be administered by cobalt machines or by accelerators. Recently most of the cobalt machine has going to be replaced by Linear Accelerator. Clinical outcomes are identical with both machines. Brachytherapy may be delivered by low dose rate (LDR) devices using caesium and high dose rate (HDR) devices using iridium or cobalt. HDR can be used for treatment of a wider variety of cancers than LDR and reduces the need for hospital bed occupancy, but demands more expertise and has higher costs.

Radiotherapy is one of the most important methods of curing local cancer. It is also often administered before or after surgery. Such treatment either facilitates surgery or consolidates surgical gains, and reduces local recurrence of disease. Palliative radiotherapy is of value in cases of pain secondary to bone metastasis and tumours causing bleeding or compressive syndromes.

Radiotherapy can cause different side effects. Patients may notice loss of appetite, nausea, and occasionally vomiting persisting for a week. The symptoms are mild in nature and seen in about 10% of patients, and are easily controlled by medicines. Other side effects depend on the site irradiated and can include mucositis and bone marrow depression. Long-term side effects are also observed.

**Chemotherapy**

Chemotherapy is the use of cytotoxic drugs against cancer. 25-30% patients require chemotherapy as primary or combination therapy. Cancer cells are damaged to the extent
that they cannot survive. Normal cells are also damaged but to a lesser degree. Chemotherapy is curative in certain cancers e.g. Hodgkin disease, high-grade non-Hodgkin lymphomas; palliative in many cancers, and used as adjuvant therapy for some cancers including breast cancer, ovarian cancer and colorectal cancer. The goal of adjuvant therapy (treatment given in addition to primary definitive therapy in the absence of macroscopic residual disease) is to avoid metastases, prolong life and improve quality of life. Chemotherapy is ineffective in hepatobiliary cancers, pancreatic cancer, thyroid cancer, and central nervous system cancers among others.

Acute side effects of chemotherapy are usually self-limited and reversible. Fall in blood count, hair loss, nausea; vomiting, constipation, diarrhea, anaemia, and depression of the immune system are some of the side-effects. There may be drug specific side effects like cardiotoxicity, nephrotoxicity, neurotoxicity etc.

In summary, primary prevention, early detection, prompt diagnosis and appropriate treatment, and palliative care are the main strategies for cancer control. Each cancer requires a distinctive mix of these strategies for its control. The matrix given in below Table suggests the options on a prevention-treatment-palliation continuum, for each cancer. On an average 50-60% of the patients are treated with radiotherapy, 20% with surgery and 25-30% with chemotherapy (as primary treatment or in combination).

**Relative importance of various interventions in different cancers**

<table>
<thead>
<tr>
<th>Cancer</th>
<th>Early Detection</th>
<th>Surgery</th>
<th>Radiation</th>
<th>Chemotherapy/</th>
<th>Palliative Care</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head/Pharynx</td>
<td>++</td>
<td>++</td>
<td>+++</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Oesophagus</td>
<td>-</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Stomach</td>
<td>++</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Colon/Rectum</td>
<td>++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Liver</td>
<td>-</td>
<td>++</td>
<td>-</td>
<td>-</td>
<td>+++</td>
</tr>
<tr>
<td>Breast</td>
<td>+++</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>+++</td>
</tr>
<tr>
<td>Cervix</td>
<td>+++</td>
<td>++</td>
<td>+++</td>
<td>-</td>
<td>+++</td>
</tr>
</tbody>
</table>

**Key:** — = no role; + = slight role; ++ = modest role; +++ = major role

Tobacco-related cancers like cancers of the lungs, pharynx, and oral cavity are highly amenable to primary prevention. Early detection and treatment is possible for cancers of the oral cavity, uterine cervix, and breast. Palliative care is a key intervention for all types of cancers.

Multidisciplinary therapy, tissue conservation, protocol driven treatment of supportive care are only available to cancer patients treated in oncology /radiotherapy department of medical
college hospital, Oncology department of Medical colleges or tertiary level cancer centres in private. All the rest receive just radiotherapy of a modest standard with or without chemotherapy.

<table>
<thead>
<tr>
<th>Approach</th>
<th>Cancers</th>
<th>Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prevention</td>
<td>Tobacco-related cancers</td>
<td>Tobacco control / cessation</td>
</tr>
<tr>
<td>Early detection</td>
<td>Oral / Breast Cancers</td>
<td>Propagation of awareness and self-examination</td>
</tr>
<tr>
<td>Diagnosis and treatment</td>
<td>Common cancers</td>
<td>Opportunistic examination</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Diagnostic support</td>
</tr>
<tr>
<td>Palliative care</td>
<td>All advanced cancers</td>
<td>Oral morphine availability, Human resource distribution, Community participation</td>
</tr>
</tbody>
</table>

Facilities for Cancer Treatment

The three major modalities of treatment namely surgery, radiotherapy and chemotherapy are also grossly inadequate in the country both in terms of personnel and equipment especially in the semi urban and rural areas. This has forced the rural population to seek treatment in the urban areas which is geographically and financially in accessible to them. To reach such facilities they are constrained to spend huge amounts of money mostly beyond their reach. This ultimately impoverishes them. Such constraints leave an unestimated number of cancer cases in the population either without diagnosis or treatment. If one looks at the location of the treatment units in the country the stark reality of inequitable access will become obvious.

Palliative care

Palliative care is ‘An approach that improves the quality of life of patients and their families facing the problems associated with life-threatening illness, through the prevention and relief of suffering by means of early identification and impeccable assessment and treatment of pain and other problems, physical, psychosocial and spiritual’ (WHO 2002). The quality of life of patients and their families facing a life-threatening illness. This is done through prevention and relief of suffering by means of early identification, accurate assessment and treatment of pain and physical, psychosocial and spiritual problems. Palliative care involves a multidisciplinary team approach.
It deliver care e.g. such affirms life and regards dying as a normal process; aims neither to hasten nor to postpone death; aims to provide relief from distressing symptoms; integrates physical, social, emotional and spiritual aspects of care to help the dying person and their family attain an acceptable quality of life; offers help to the family, and carers during the person’s illness and their bereavement. Palliative care for children represents a special field – albeit closely related to adult palliative care – whose principles also apply to other paediatric chronic disorders (WHO 2002) (Appendix 5).

Having a good quality of life is a highly significant aim for patients with cancer, whether or not cure is possible. Cancer pain relief and palliative care are important and integral parts of cancer care. Relatively simple and inexpensive treatment to control pain should be available throughout the country as a priority. Palliative therapy and care, including symptom control and pain relief, will be important for years to come, especially for Bangladesh, because of the large number of patients for whom curative therapy is not possible. Relief from pain and other problems can be achieved in over 90% of all cancer patients. Effective strategies exist for the provision of palliative care services for cancer patients and their families, even in low resource settings.

Actions to ensure the availability of oral morphine for cancer pain relief, and training of health professionals in palliative care, are critical. Oral morphine for cancer related pain is available currently only in very few parts of the country. Awareness regarding the cancer related pain is lacking both in the profession, community and patients. There is a serious limitation of manpower professionals and NGOs in providing palliative care. But poor availability of drugs such as morphine is a big hindrance. Govt. needs to take care of this issue.

Supporting Care and Rehabilitation

When someone develops cancer, its impact extends beyond the physical effects of the disease to include psychological, social, economic, sexual and spiritual consequences. Coping with the disease and its treatment involves a range of issues, which impact on those with cancer as well as their families. Supportive care and rehabilitation is defined as: the provision of the necessary services, as determined by those living with or affected by cancer, to meet their physical, social, emotional, nutritional, informational, psychological, sexual, spiritual and practical needs throughout the spectrum of the cancer experience (Canadian Strategy for Cancer Control 2002). These needs may occur during diagnosis, treatment or follow-up after treatment, and include issues of survivorship, recurrence of the disease and, in some cases, death.

There is growing evidence that supportive care and rehabilitation can buffer cancer patients and their caregivers from psychiatric, psychological and social morbidity. Furthermore, for those who go on to develop intrusive or more severe problems, a range of psychological and social interventions have been found to have a variety of benefits, including improved quality
of life and illness adaptation, reduced psychological distress, and reduced rates of clinical syndromes. Internationally, it is accepted that supportive care and rehabilitation are desirable at every stage along the continuum of care.

Cancer Control Surveillance

In the health arena, surveillance consists of the ongoing collection, analysis and dissemination of data of public health importance to allow for the planning and implementation of health policy. Cancer surveillance provides a quantitative portrait of cancer and its determinants in a defined population and allows the effectiveness of cancer policy to be evaluated. It also raises questions that form the basis for cancer research and interventions for cancer prevention and control. Cancer surveillance functions include:

• monitoring trends in cancer incidence, prevalence and survival over time and between different geographic areas, social groups, and other defined populations
• evaluating the effectiveness of cancer prevention and screening
• evaluating the quality and outcomes of cancer care
• evaluating the impact of environmental and social factors on cancer risk
• supporting investigations into the causes of cancer
• providing information in support of cancer genetic counseling services for individuals and families at higher risk of developing cancer.

The development of cancer surveillance will allow services to be planned and evaluated in keeping with evolving needs for services. Surveillance is one of the fundamental elements of the Bangladesh Cancer Control Strategy. The data collection required for surveillance requires the collaboration of service providers and, where necessary, continuing legislative support. A fully functioning and dedicated cancer registry with appropriate expertise is a cornerstone of cancer-control surveillance.

Cancer Control Research

Research is a key factor in promoting health, combating disease, reducing disability and improving quality of care. Cancer research is an essential component in the development, implementation and evaluation of a national cancer control programme. A scientific basis needs to be established for identifying the causes of cancer and for specifying effective strategies for the prevention, treatment and control of cancer, as well as for evaluating overall programme performance. Bangladesh needs to address cancer control at all levels with the assistance of a comprehensive research portfolio, encompassing all fields of cancer research.

Research is needed across the spectrum of cancer control to provide the basis for continual improvement. As identified by the WHO (2002). Cancer research is wide-ranging, extending over a number of key areas including:
a. Epidemiological research, which relates to the study of the distribution and determinants of
disease in populations (environmental or human behavioural factors).
b. Prevention research, which encompasses research into health promotion and education, screening and other early
detection initiatives.
c. Laboratory research, which has almost no activity in Bangladesh, research needed particularly in cell and molecular biology (eg, biological mechanisms underlying cancer).
d. Extensive laboratory-based research programmes exist at various major
hospitals.
e. Clinical research, which is concerned with the study of the natural history of the
cancer process in humans and the assessment of efficacy and toxicity of treatment
determining the most effective treatment).
f. Clinical psychosocial and behavioural (eg, factors impacting on prevention, the response to screening, and the impact of diagnosis and
treatment).
g. Translational research, which is concerned with the integration of bench and
clinical research for the benefit of cancer patients and those at risk of developing
cancer.
h. Health system and health policies research, which is a wide-ranging,
multidisciplinary field that investigates the structure, processes and effects of health care
services (eg, how services can best be implemented and organized).

In reviewing the challenges posed by cancer and the scope for improving cancer services,
emphasised for establishing a more formal and coordinated approach to cancer research, with
particular reference to clinical research. There is considerable scope to further increase
capacity for research, to achieve a better balance between clinical and non-clinical research,
and to develop the research infrastructure needed to coordinate and govern cancer research.

CANCER SCENARIO OF BANGLADESH

Cancer is the sixth leading cause of death in Bangladesh (BBS, 2004). Bangladesh is still
lacking a national cancer registry. A few years back, hospital based cancer registry has been
started at National Institute of Cancer Research Hospital and Oncology Department of
Bangabandhu Sheikh Mujib Medical University with technical assistance from WHO.
International Agency for Research on Cancer (IARC) has projected that death from cancer in
Bangladesh is 7.5 % in 2005 and it will be increased upto 13 % in 2030. IARC has projected
(2002) the death from 10(ten) leading cancer in case of females are mouth and oro-pharyngeal
cancer, cervical, breast, esophageal cancer, ovarian cancer, lung cancer, lymphoma, stomach,
liver, colo-rectal cancer and in case of males are mouth and oro-pharyngeal, lung cancer,
esophageal cancer, lymphoma, stomach, bladder, liver cancer, leukaemia ,colo-rectal cancer
and prostate. A recent WHO study estimates 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. 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 ((Impact of Tobacco–
related Illness in Bangladesh, WHO 2005).

Burden of Cancer

Oral, breast and cervix cancer together constitute more than 43% of the female cancer burden
in Bangladesh. Oral cancer is an avoidable cancer and can also be detected early as it has long
precancerous stage. The examination method is simple and if the individual has awareness he will certainly submit for the same. Clinical breast examination followed by FNAC or biopsy is easy and simple methods for early detection of breast cancer. Cervical cytology at the age of 40 years will prevent further disease in 2/3rd of women and has a high sensitivity and specificity. All the above cancers if detected early and treated optimally and almost immediately can result in higher rates of cure.

There was an important finding to note from NICRH and BSMMU Cancer Registry that more than 66% of the cancers occur in the age group of 30-65 years. Such data discloses the impact of cancer as a major public health problem in the most productive age group.

The NICRH and BSMMU cancer registry data revealed that about 20-25% of the cancers are diagnosed in a localized stage. The majority of the cases are diagnosed when the disease is regional (2/3rd of all cases). Disease with distant metastasis at the time of diagnosis is less than 15%. Disease extent at presentation is similar in all therapy centres.

Although children with cancer represent only 1 percent of the overall incidence of the disease, the successful treatment of cancers occurring in young people results in considerable saving of years of life. Cancer incidence in the 0–14 years age worldwide 70% of childhood cancers are cured, but one-half of the survivors have long-term sequel. Adolescents with cancer have poorer survival than children cancer. The commonest 5 cancers in children are leukemia, lymphomas, CNS tumors, soft tissue sarcomas and renal tumors (World Cancer Report, WHO, 2005).
Along with many other countries, Bangladesh has an increasing number of cancer, primarily because of population growth and ageing. According to WHO estimation cancer is now one of the leading cause of death in Bangladesh. Incidence is around 200,000 and mortality is around 1,50,000 people each year and overall cancer load is around 12,00,000 with the number expected to increase many fold by 2030.
Although there are still some open questions, there is sufficient evidence that dietary factors play an important role in causing cancer. This applies to obesity as a compound risk factor regarding the composition of the diet as well as lack of fruit and vegetables and high salt intake. Lack of physical activity has a distinct role as risk factor for cancer.

The NICRH and BSMMU cancer registry data revealed that 68% of the cancers in the male and 5% of the cancers in female are tobacco related and hence entirely avoidable. Tobacco is used in different forms in Bangladesh and the common cancers caused by tobacco are lung, larynx, urinary bladder, and esophagus, pharynx all due to smoking tobacco, the mouth, tongue and lip due to chewing and smoking tobacco. Due to socio-cultural reasons women are mostly non-smokers thus tobacco related cancer in female is still low in this Bangladesh.

Economic Impact of Cancer

Economic impact of cancer is huge. Bangladesh hospital cancer registry showed that most of the cancer patient’s age group is between 30-65 years, which is around 66%. These people are...
the main workforce structure of a country. It has gigantic economic impact. It has direct and indirect cost, which needed to be measure urgently. As a example we may look for the WHO study that revealed the annual cost of tobacco-related illnesses in Bangladesh as attributable to tobacco usage is estimated to be 45 billion taka considering that only a quarter of the patients with tobacco-related illnesses receive hospital care. On the other hand, the total annual benefit from tobacco sector is estimated to be 24.8 billion taka as tax revenue on the domestic consumption of tobacco (20.3 billion taka) and wages in tobacco production (4.5 billion taka). The cost of tobacco usage to the country thus outweighs the benefit from revenue and wages by 20.3 billion taka per annum (equivalent to US$ 344 million). It indicates that Bangladesh economy would greatly benefit from controlling the usage of tobacco.

Bangladesh is not able to provide the latest treatment facilities for cancer management and government’s support inadequate. Every year Bangladesh is losing huge amount of foreign currency for this purpose. If govt. would invest one quarter of this amount for next four years overall cancer management could reach at South East Asian regional level.

**Infrastructure for Treatment**

In Bangladesh there are 15 radiotherapy centers both in public and private sector. Only one is situated at rural area. Bed capacity is around 500 beds all over the country which is very much insufficient. There are only Eight Linear Accelerator has been installed in the country. Among these four is functional. Two of them is in the private sector. One for BSMMU is in the way of procurement. Around 11 Cobalt -60 machines are available in country. Out of these 9 units are functional. There are 08 brachytherapy machines, among these only 03 units is functional in Bangladesh. One is in public sector at BSMMU; other two are at private sector. According to International Atomic Energy Agency (IAEA) per 1 million population needs 2 Teletherapy and 1 Brach therapy machine. According to this estimation only Dhaka city needs 20 and country needs around 300 Tele-therapy (radiotherapy) machines respectively. Beside these WHO has published a list of essential chemotherapy. Recently govt. of Bangladesh updated the essential drug list and incorporate important essential chemotherapy in the list but unfortunately there is no public procurement till date and drug is also not available in the market. For anti-cancer drugs govt. must take initiative to set up pharmaceutical industry or plant.

**Human Resource Development for Cancer Management**

Human resource for cancer is also very much inadequate in the country. In Bangladesh like United Kingdom clinical oncology practice is going on. Fellowship, MD and M.Phil in Radiotherapy trained equally on both radiotherapy and chemotherapy. We are suffering from scarcity of medical physicists also. Beside this we have limited histo/cytopathologists, surgeons/gynecologist/Head-Neck dedicated in oncology, radiotherapy technicians, cytology and histo technicians and oncology nurses. Bangladesh needs huge oncologists in a shortest possible time. Now there is a BSC technology course is continuing at Institute of Heath technologist. It will be easy for Bangladesh to follow United Kingdom system to develop
oncologists in a shortest possible time. For future we may introduce different types of courses such as for oncologists at least to 6 months, for technicians 6 months, for nurses 6 months and for medical physicists 6 months to 1 year external training will be useful.

Beside these post creation for oncologists is also important to 150 beds to upwards all general hospitals.
The Bangladesh Cancer Control Strategy

The Cancer Control Strategy is the first step in the development and implementation of a comprehensive cancer control programme in Bangladesh. This strategy has been designed to be consistent with the needs and expectations of the people of Bangladesh, and to enable the doable goals of development and improving health. The strategy includes vision, goals, principles, objectives, goals, indicators and plan of actions to guide present and future actions to control cancer. Three 'P' will guide this strategy.

- **Partnership**: strategies for health gain and appropriate health and disability services
- **Participation**: involving people at all levels of the sector in the planning, development and delivery of health and disability services
- **Protection**: ensuring equal access of both poor and rich to cancer health and safeguarding individual's cultural concepts, values and principles.

Strategy in Context and Development process

Derives its mandate directly from Article 25(A) of UN Human Rights Declaration, Article No. 15 and 18(A) of constitution of Peoples' Republic of Bangladesh describe health is a fundamental rights of the people; Secondly, Bangladesh is a signatory of WHO Resolution No.WHA58.22 on Cancer Prevention and Control, which urges WHO member states to develop and implement a national cancer control strategy for reducing the incidence and impact of cancer.

Government has formulated ‘National Non-Communicable Diseases Strategy and Plan of Action’ in 2007 with the help of with the technical support from WHO. Following that govt. has taken this noble initiative to formulate ‘National Cancer Control Strategy and Plan of Action’. Government has also expressed its commitment to develop 'National Cancer Strategy and Plan of Action' in HNPSP and RPIP (2003-2010). Beside this a workshop was held at NICRH in 2005 with the support of WHO to develop a draft of cancer control plan. Finally, it gathered momentum after the decision of National Cancer Control Council. Govt. has formed a National cancer control Task force almost five years back but real initiative was taken by the honourable Health and Family Welfare Advisor Dr. AMM Shawkat Ali in 2008. Accordingly NCCS Task Force has co-opted new members started to work under the leadership of Directorate General of Health Services. A consultative meeting was held with the presence of the entire relevant stakeholders on 17 November 2008.

Why National Cancer Control Strategy?

Bangladesh requires a cost effective cancer control strategy with maximum reach, coverage and equity. A strategy based on health promotion, professional training, diagnosis and
treatment with community participation and carried out through the existing health services with minimal health system modifications would meet these requirements.

Development of a national cancer control strategy and plan of action is the way forward to achieve significant level of cancer control with limited resources. A careful planning, coordination mechanism, integrated set of activities covering all aspects of cancer prevention and control, and which operates with an appropriate allocation of available resources among the various activities and equitable coverage of the people.

Bangladesh is in need for such national cancer control activities. Few initiatives were taken to formulate & draft such plan before. In 1992 Bangladesh cancer society published a cancer control plan. A consensus workshop was organized by NICRH on development of National Cancer Control Plan with support of WHO 2005. But there was no National Cancer Control Strategy and Plan of action developed before.

**Vision**

‘Bangladesh will have a system of cancer control which will reduce our cancer incidence, morbidity and mortality rates relative to the South-Asian countries by 2015. Bangladesh people will know and practice health promoting and cancer-preventing behaviours and will have increased awareness of and access to early cancer detection and screening. Bangladesh will have a network of equitably accessible state-of-the-art cancer treatment facilities and we will become a regionally recognized location for education and research into all aspects of cancer.’

**Goal:**

**Goal 1:** To reduce the incidence of cancer through primary prevention.

**Goal 2:** To ensure effective screening and early detection to reduce cancer incidence and mortality.

**Goal 3:** To ensure effective diagnosis and treatment to reduce cancer morbidity and mortality.

**Goal 4:** To improve the quality of life for those with cancer and their family through support, rehabilitation and palliative care.

**Goal 5:** To improve the delivery of services across the continuum of cancer control through effective planning, co-ordination and integration of resources and activity, monitoring and evaluation.

**Goal 6:** To improve the effectiveness of cancer control in Bangladesh through research and surveillance.
Principles

- Ensure timely and equitable access for all people to a comprehensive range of health and disability services
- be of high quality
- be sustainable
- Use an evidence-based approach
- Reflect a person-centered approach
- Actively involve communities
- be undertaken within the context of a planned, co-coordinated and integrated approach.

Objectives to Meet the Goals

General Objectives:

To reduce the morbidity and mortality of cancer through primary prevention, early detection and effective diagnosis and treatment

Specific Objectives:

1. To create awareness about tobacco related cancer and harmful effects through anti-tobacco action programmes involving student volunteers, scouts, inter-sectoral personnel, medical personnel and people at large.

2. To attain Early Clinical Diagnosis (ECD) of oral, cervical and breast cancer through circulation of warning signals, screening and motivation and expand laboratory diagnostic support through a district level early cancer detection programme and early detection centre.

3. To extend the therapy by introducing minimal therapy for early cancer at the periphery and comprehensive multi disciplinary protocol based therapy with early detection in Oncology /Radiotherapy Department of medical colleges and palliative care at the district level.
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4. To widen the coverage and reach of palliative care by providing human resource and supplying necessary drugs and equipments to district level, collaborating with NGOs for home care service.

5. To improve the quality of life for cancer patients and their family through support, rehabilitation and palliative care

6. To develop the effective delivery of services across the continuum of cancer control through effective planning, co-ordination and integration of resources and activity, monitoring and evaluation

7. To generate essential evidences for effective cancer control through research and surveillance.

Target 2015

Affordable and accessible diagnostic, therapeutic and palliative care services will be made available in Bangladesh.

- Tobacco control has to be strengthened.
- Intake of fruits and vegetables, and physical activities promoted.

Govt. is now working with the support from HNPSP and WHO on the above mentioned areas.

Key Components

Infrastructure and Human Resources

- Early detection of oral, breast and cervical cancers will made available through NICRH/Medical University/Oncology radiotherapy/ department in Govt. medical colleges hospitals and some selected non-profit private facilities through augmentation of infrastructure and capacity enhancement.

- Radiotherapy machines will made available in the country as per guideline of International Atomic Energy Agency (IAEA) and PACT (Programme of Action for Cancer Therapy) prescription, taking into consideration the geographic gaps in the present distribution. Machines should be chosen in such a way that they are environmentally acceptable and recurring costs are minimal.

- Govt. will encourage public-private partnership and decentralization of cancer centre al over Bangladesh.

- Dedicated paediatric cancer treatment facilities will need to establish in all govt. medical college hospital.
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- Radiotherapy technicians, clinical/radiation oncologists and medical/radiation physicists will be made available; surgeons and gynaecologists, general practitioner will be reoriented.
- Onco-nurses, doctors and pharmacists trained in pain relief and palliative care will have to be made available.
- Training to be augmented and drug therapy for curable cancers including paediatric cases made available in all Oncology/Radiotherapy Department of Medical College Hospitals.

![Fig. 2. The relationship between disease-modifying therapy, supportive care and palliative care](image)

**Palliative care**

**Drugs**

- An essential drugs list of cancer chemotherapeutic drugs will have to be prepared and availability of all drugs in the essential list ensured. Protocol-based chemotherapy should be made available.
- Oral morphine will have to be made available in all districts of the country.

**Surveillance and monitoring**

- All oncology/radiotherapy department of medical colleges should have two population-based registries, one covering the urban area and one for the rural area.
- Community participation
- Community participation in the cancer programme can be ensured by having development committees for District level and oncology/radiotherapy department of medical colleges with people’s representatives, religious leaders, teachers, etc.
Non-governmental organizations (NGOs) and civil society

NGOs and civil society initiatives such as Bangladesh society of Radiation Oncology, BMA, OGSB, Pediatric Oncology Society, and BNA, needed to be promoted and linked to cancer diagnostic and treatment centres.

Linkages

Linkages with the Reproductive and Child Health Programme, National HIV/AIDS Control Programme, Nutrition Programme and Hepatitis B/C Control Programme will be established.

Funding

Government of Bangladesh through HNPSP and development partners like World Bank, DFID, IDB, GTZ, KFW, JICA, CIDA, SIDA, NORAD, ADB, and UN technical agencies such as WHO, IAEA, UNFPA and UNICEF.

Health Insurance

Chronic disease like cardiovascular disease, cancer and chronic renal disease treatment require huge financial involvement. For this reason all the countries of South East Asia have established universal health insurance scheme. Despite Govt. policy document SIP and HNPSP illustration health insurance is one of the alternate financial policy directions but no initiative has taken so far.

National Cancer Control Trust Fund

A national cancer control welfare trust will be created with the govt. initiative. Fund will be generated from taxation from tobacco, tobacco product sales, cinema hall, luxury hotels, air tickets, Air-conditioned bus etc.

Delivery of Services

- Oncology/radiotherapy department of medical colleges will be the nucleus and it will coordinate and support the delivery of all cancer-related services. Medical colleges will need to be restructured to enable oncology department to function with more objectively.
- All services at the district level will be provided by the District Cancer Control Committee will become responsible for providing all services related to cancer in the community.

General
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In order to achieve the targets outlined below certain general measures needed to implement:

- Preparation of a cancer control plan at the national level, division level and district level taking into consideration of socio cultural factors, economy, health infrastructure, health priorities and availability of human resources.

- Formulation of district cancer control committee, which will be the channels for delivery of cancer control at the grass root level.

- Constitution of cancer technical groups in as a collaborative effort of the medical college cancer centre to function as a resources centre for preparation of the cancer control plan and human resource development.

- Oncology /radiotherapy department, major private cancer institutes, which will be the resource centre for district cancer control programme and its monitoring.

- Cancer registries will be stated at all Oncology /radiotherapy department to accurate countrywide database on cancer and to monitor cancer morbidity.

Primary prevention

- The most useful prevention strategy is reduction in tobacco consumption (all forms). Currently a bulk percentage of cancers in men and women are related to tobacco use. These cancers can be prevented to a large extent through a comprehensive tobacco control programme which will include awareness, education, legislation, community participation and tobacco cessation services.

- Ensure that use of tobacco among women and children remain status quo through formal and non formal education for children, advocacy programmes for women.

- Reducing betel nut use with betel leaf and tobacco products.

- Reduce tobacco habit among adult habits by 20-25% by establishing Quit tobacco clinics in all community clinic.

- All Government controlled public places are declared tobacco free (legislation)

- Price of tobacco products is doubled in 5 years (legislation)

- Extensive propagation of health promotion messages in government electronic Media

- A healthy lifestyle, which includes eating plenty of fruits and vegetables, avoidance of alcohol and adequate physical activity, is protective for many of the non-communicable diseases including cardiovascular disease and diabetes, and can be considered as part of the overall health promotion programmes.

- Cancers related to infectious agents such as human papillomavirus and hepatitis B virus can be prevented through vaccination strategies.
Early etection

- Cancer of the oral cavity, breast and cervix are identified as targets for early detection and control
- Opportunistic diagnosis of lung at T.B Clinic, GI malignancy such as stomach, oesophagus, colorectal and ovary, prostate, also very important.
- Early warning signals of these cancers are propagated widely through national electronic media
- Diagnosis of localized disease for these three common forms of cancer increase from 20 to 40%
- At least 50% of the districts in Bangladesh will have district cancer control programmes with cytology facility

Early detection, diagnosis and treatment/referral chain

- Cancer detection and diagnostic facilities will be made available at medical colleges and district-level hospitals if they are to be accessible, and a clear referral chain should be established to ensure that those who require further treatment are referred to higher-care centres such as Oncology/radiotherapy department.
- Medical colleges should have provision for the management of all early common cancers.
- Dedicated centres need to be established for the management of paediatric cancers.
- Oncology/radiotherapy department should be equipped for comprehensive cancer control, treatment and research.

Screening for Cervical Cancer

Cervical smear cytology is the standard screening test for cervical cancer. It is an easy and effective method revealing the presence of pre-cancerous lesions as well as in situ or very early invasive cancer. Screening should preferably begin at 35 years of age, as at younger ages dysplasia detected through screening rarely progresses to cancer, but adds to programme cost in treatment (Figure below). The important requirement for cervical cytology is the availability of good laboratory services so that accurate diagnosis is possible.

Screening programmes may be initiated in a defined population if adequate trained manpower and facilities are available. The most important aspects of a screening programme are its organization and management. All women in the target population should be invited for screening, unique identification numbers provided for follow up, and reliable laboratory facilities and personnel made available. The screened population has to be provided appropriate interventions and follow up. At least 80% of the target population has to be covered if reduction in incidence is to be achieved.
Early detection of cancer prior to the development of symptoms occurs through screening, which is a process whereby people who have no symptoms are invited (either directly or through publicity) to undergo a test or procedure, usually at regular intervals.

In some instances, the purpose of screening is to detect cancer at an early stage of development; in others, cancer screening identifies precursors of cancer, the treatment for which can reduce the risk of cancer developing. Although a number of cancer screening tests have been developed, only a few have been proven effective and therefore recommended for defined populations. To be considered effective, a screening test must meet a number of requirements established by the WHO (2003).

Alternative strategies such as visual inspection are being tested for use in low-resource settings where laboratory facilities for cervical cytology are inadequate. Test performance of Visual Inspection with Acetic acid (VIA) suggests that it has similar sensitivity to that of cervical cytology in detecting cervical intraepithelial neoplasia, but has lower specificity.

Further studies are underway to judge how appropriate and feasible it will be to introduce VIA-based cervical cancer screening programmes on a population-wide basis. There is increasing interest in the use of HPV DNA testing for screening. The test, however, requires financial and sophisticated technical resources. However, (more than the tests) it is the health system, with the required resources and services for the follow up management of those with abnormal test results that determines the

**Screening for Cancer of breast**

Mammography is an effective screening test for breast cancer, and can reduce mortality due to breast cancer if used with appropriate follow-up. Unfortunately, it is an expensive test that requires great care and expertise both to perform and in the interpretation of results.

It is therefore currently not a viable option for many countries. Breast self-examination has not been proven to reduce breast cancer mortality. Early diagnosis of breast cancer, by promoting breast awareness among all women and clinical breast examinations for women preferably in the age group 40-69 years, should be encouraged. BSMMU has taken a project with the help of UNFPA for clinical breast examination.

Appropriate diagnostic facilities and referral practices have to be established to ensure that early detection and screening programmes result in the desired results.
Palliative care

- Oral morphine will be made available at the district level throughout the country. Various categories of health professionals need to be trained in the WHO step-ladder approach to pain management.
- Palliative care should be treated as an integral part of cancer management.
- All Oncology/radiotherapy department and oncology wing of medical colleges have a pain relief and palliative care programme with morphine availability.
- All Dist Cancer Control Plan will have pain relief and palliative care programme with 2 beds and morphine availability.

Cancer Surveillance and monitoring

- The cancer registry programme is to be expanded and be made the monitoring component of the cancer control programme.
- Hospital based cancer registry program will be expended all over Bangladesh.
- Population based cancer registry is started at by Cancer Foundation at Gazipur with the support from WHO.
- With the support from WHO, a new population based cancer registry program will be conducted by Oncology department of BSMMU at North Motlab Upzilla, Chandpur.
- At least 50% of the population will made aware of the disease, its risk factors, prevention potential and curability.
- Paramedical personnel and field-level health workers will be trained for providing awareness, documentation and ensuring compliance to referral and treatment.
- A comprehensive tobacco control programme must be implemented to reduce the prevalence of tobacco use by 10% from the current levels.
Capacity Building

Capacity building for cancer control is one of the major priorities of a successful cancer control programme. Through suitable strategies and training programmes human resources can be mobilized for prevention and early clinical detection activities from the govt. health workers, community, NGOs, youth organizations, multi sectoral groups, professional organizations etc. Utilization of such man power will give cost effective and efficient as they will be more committed.

The categories trained and purpose of training is detailed below:

Categories of Trainees Purpose

- Student Volunteers Anti-tobacco education programmes
- Scouts and Guides Tobacco Free Homes / ECD
- Parent Teachers Association, members, scouts and School education on anti-tobacco programmes /guides, masters and captains, senior public men, ECD teachers
- Educated Village Youth Volunteers Anti-tobacco education,
- Education of early warning signals, motivation for physical examination,
- Referral for therapy and follow-up and Pain Relief and Palliative Care
- Religious Personnel and workers Anti-tobacco programme,
- Propagation of warning signals, technical breast examination, oral examination
- Elite social organization Anti-tobacco programmes,
- Propagation of warning signals,
- Financial support to National Cancer Control Programme
- Media personnel Appropriate publicity for National Cancer Control Programme
- Other inter-sectoral groups All activities
- Other system doctors Anti-tobacco activities, early detection of Oral and breast Cancer

Technical personnel required for early cancer detection are medical professionals and cytotechnologists of which the cytopathologists are more critical and least available. The cancer control programme in Bangladesh will never take off if this aspect of human resource development is ignored. Immediate need is to train adequate number of cytopathologists and cytotechnicians annually.

A programme could be started by the DGHS in all medical colleges organized by the department of oncology/radiotherapy supported by departments of pathology. The other medical professionals would need only short term training which can be done in a department of oncology/radiotherapy.
Category Subject

Multipurpose Health Workers Health Education, motivation for cancer screening
collection of Pap Smear
visual inspection of Cervix and teaching of oral cavity
breast self-examination
Cytologist FNAC and Pap Smear
Cytotechnician Pap smear, VIA, Cervicoscopy and staining of cytology smears
Pharmacist Narcotics Management
General Practitioner Cancer related physical examination (CRPE)
FNAC and management of pre-cancers,
Palliative care
Surgical specialists CRPE, Cervicoscopy, FNAC, biopsy, management of early oral, breast, skin and thyroid cancers
Gynaecologists CRPE, cervicoscopy, colposcopy and Management of advanced dysplasias and early cancers

For overall cancer control several groups of clinical specialists (Surgical, paediatric and Clinical/radiation oncologists, registry personnel, epidemiologists, research scientists) would be required for successful implementation. The Oncology/Radiotherapy department of a medical college will entrusted with responsibilities of training of such personnel and for providing the key trainers for community programmes.
Implementation Instrument

In order to provide cancer control to the population in areas of prevention, early detection and palliative care we need to ensure:

- Political commitment
- Social commitment
- Multi-sectoral co-operation
- Technical guidance
- Capacity and committed institutions

If such services are to reach the grass route level apart from utilizing the existing health infrastructure, the participation of the community, NGO’s, media, people’s campaigns preferably integrated with other institutional programmes are all essential. There are 4 ways by which the benefits of cancer control can be channeled to the community:

1. National Cancer Control Council (NCCC) headed by Hon’ble Health Advisor. (needed to be reorganized with the involvement of major stakeholders)
2. Formation of Cancer Control Task Force under the leadership of DGHS.
3. Formation of medical college Cancer Control Committee (with the secretarial support from oncology/radiotherapy department).
4. Formation of District Cancer Control Committee.
Functions of Cancer Control Task Force

- oversee the development and revision of the written programme plan;
- assume responsibility for implementation of the plan;
- coordinate the work of all agencies that can contribute to cancer control;
- oversee the systematic development and coordination of specific cancer control activities, such as prevention, early detection, treatment and palliative care so as to ensure the best use of available resources for the whole population;
- oversee public education and participation;
- oversee professional education and development;
- identify and recommend each priorities;
- forecast future trends and coordinate the strategic development of health services, the health system, and the training and supply of health professionals;
- recommend priorities for the investment of additional resources;
- develop a communication strategy;
- oversee the information systems;
- oversee the programme evaluation process, and implement corrective changes as needed.
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<td>Percentage of the population who are smokers by age, sex and social class</td>
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<td>2.</td>
<td>Percentage of the adult and childhood populations who are overweight or obese by age, sex and social class.</td>
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<td>3.</td>
<td>Incidence of major site-specific cancers, to include at a minimum head-neck, lung, cervical, breast, prostate and colorectal cancer.</td>
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<td>4.</td>
<td>Uptake of screening and incidence of interval breast cancers in populations covered by Breast Check.</td>
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<td>5.</td>
<td>Percentage of women, in the target age-groups, for whom population based cervical cancer screening is available</td>
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<td>Percentage uptake of screening in areas covered by the Cervical Screening Programme.</td>
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<td>Stage of presentation of common cancers: appropriate stage indicators should be defined for lung, breast, colorectal and cervical cancers</td>
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<td>Trends in quality of life for cancer patients, determined by ongoing quality of life measurement, at different stages in the care pathway for major cancers</td>
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<td>9.</td>
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<td>Percentage of patients waiting for longer than one month from the time of diagnosis to the start of treatment</td>
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<td>Percentage of breast cancer patients undergoing therapeutic surgical procedures who do so in a designated breast cancer treatment centre</td>
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<td>12.</td>
<td>Percentage of patients with cancer whose care is consistent with national, multidisciplinary guidelines, as developed</td>
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| 13.   | Survival rates:  
  a. 5-year Relative Survival Rate for Cervical Cancer  
  b. 5-year Relative Survival Rate for Breast Cancer  
  c. 5-year Relative Survival Rate for Oral cancer  
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| 14.   | Mortality rates:  
  a. Direct Age Standardised Mortality rate (5-year, all ages) for all causes of cancer  
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| 15.   | Percentage of detection of cancers in localized stages at Early Cancer Detection Centre (ECDC). |
| 16.   | Percentage of cancer patients seen by a member of a Specialist Palliative Care Team |
| 17.   | Percentage of cancer patients dying by place of death (home, hospice, hospital) |
| 18.   | Percentage of cancer patients participating in clinical trials. |
Glossary

Access
The ability of people to reach or use health services. Barriers to access may be influenced by: (1) a person’s locality, income or knowledge of services available; (2) the availability or acceptability of existing services.

Caregiver
A voluntary caregiver or carer is a person, usually a family member, who looks after a person with a disability or health problem, and who is unpaid.

Chemotherapy
The treatment or control of cancer using anti-cancer drugs.

Community
A collective of people identified by their common values and mutual concern for the development and well-being of their group or geographical area.

Consumers
Users of services.

Coverage
The proportion of all eligible people screened by the programme, calculated as the total number screened divided by the number of those who are eligible.

Early detection
The detection of cancer prior to the development of symptoms, or as soon as practicable after the development of symptoms.

Effectiveness
The extent to which a specific intervention, procedure, regimen or service when implemented, does what it is intended to do for a defined population.

Epidemiology
The study of the distribution and determinants of health-related states or events in specific populations.
Equity (in health)

Evaluation

Assessment of a service or programme against a standard. Evaluations can be: (1) formative (informs the development and improvement of a programme); (2) an assessment of the process (describes the programme and helps to explain why it produces the results that it does); (3) an outcome evaluation (an assessment of the ultimate effects of a programme).

Evidenced-based practice

Clinical decision-making based on a systematic review of the scientific evidence of the risks, benefits and costs of alternative forms of diagnosis or treatment.

Familial cancer risk assessment

The investigation of (1) a reported family history of cancer (2) an individual who develops cancer at a young age (usually under 50 years) with no family history to assess cancer risk for individuals and/or members of their family.

Gene

A large molecule, part of a cell’s DNA, which controls the production of a protein molecule and through it, some action or function of the cell.

Genetic mutation

An error in the gene caused by damage. This may result in a faulty or altered protein, or no protein being produced.

Goal

A high-level strategic action.

Health promotion

The process of enabling people to increase control over and improve their health. It is a comprehensive social and political process.
Health status A description and/or measurement of the health of an individual or population.

Incidence The number of new cases or deaths that occur in a given period in a specified population.

Intervention A programme or series of programmes.

Monitoring The performance and analysis of routine measurements aimed at detecting changes.

Morbidity Illness.

Mortality Death.

Cancer Registry Cancer Registry maintains a register of people who develop malignant diseases. Registrations are based on single primary cancer cases that are distinguished by differences in topography or histology. Each case of cancer is registered just once, in the year the cancer is first diagnosed.
References


### Table 1: Radiotherapy Facilities in Bangladesh

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<th>Sl No.</th>
<th>Name of the Institution</th>
<th>Linear Accelerator</th>
<th>Co$^{60}$ Teletherapy</th>
<th>Deep X-ray</th>
<th>Brachytherapy</th>
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<th>Treatment Planning System</th>
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### Table 2: Hospital Beds attached to Oncology/Radiotherapy Departments

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List of Invitees of Consultative Meeting on National Cancer Control Strategy and Plan of Action 2009-15 (held on 17 Nov 2008)

1. Prof Md Abul Faiz, Director General, DGHS, Dhaka.
2. Dr. Md. Masud Alam, Line Director (NCD & OPHI), DGHS, Dhaka.
3. Mr. M. Fazlur Rahman, Ex-Secretary, Health, MOHFW and Managing Director, Ahsania Mission Cancer Hospital, Dhaka.
4. Dr. Zafar Ullah Chowdhury, Project Coordinator, Gano Shastho Kendro.
5. Prof ABMF Karim, Ex-Prof Emeritus, Vrije, Amsterdam, Netherlands.
6. Prof. S.M. Anisur Rahman, Director in Charge, NICRH, Dhaka.
7. Prof Syed Md Akram Hussain, Chairman, Oncology Dep. BSMMU.
8. Prof. Md. Zafar Ullah Chowdhury, Director, NIPSOM.
9. Dr. Md. Akhter Hossain Bhuiyan, Director, Hospitals & Clinics, DGHS
10. Prof Ahmed Sayeed, Secretary General, Bangladesh Cancer Society.
11. Prof. Md. Abdul Hai, Director, Bangladesh Cancer Hospital Welfare Hospital.
12. Prof Dr. Syed Mukarram Ali, Prof. of Pathology, Delta Hospital, 26/2 Darus Salam Road, Mirpur, Dhaka.
13. Prof. Md. Hafizur Rahman Ansary, Prof. of Radiotherapy, Sher-e-Bangla Medical College, Barishal.
14. Dr. Chaman Afroz, Director, IPH.
15. Prof. Md. Golam Mostafa, Prof. of Histopathology, NICRH.
17. Chairman, Bangladesh Medical Research Council, Dhaka.
18. President, Gynaec and Obstetrics Society of Bangladesh.
19. Secretary General, Bangladesh Medical Association, Dhaka.
20. Prof AKM Ghulam Mohammad, Head, Department of Radiotherapy, Dhaka Medical College.
21. Prof Mahaboob Ul Alam, Head of Radiotherapy, RMC, Rajshahi.
22. Prof Mokhles Uddin, Head, Department of Radiotherapy, Chittagong Medical College, Chittagong.
23. Dr. M. Mostafa Zaman, NPO, NCD, WHO, Dhaka.
24. Dr. Jebun Nessa, Rahman, NPPP, UNFPA.
25. Dr. Motiuddin Ahmed, Programme Manager, NCD&OPHI, DGHS, Dhaka.
26. Dr AKM Jafar Ullah, DPM (Arsenic & NCD), DGHS.
27. Ms Morsarrt Jahan Talukder, Executive Director, CCPR, Gazipur.
28. Dr. Md. Habibullah Talukder, Associate Prof. NICRH.
29. Dr. Md. Lutfar Rahman, Project Director, AMCGH.
30. Dr. Abu M. Moshinur Rahman, A/C Project Coordinator, DGHS.
31. Dr. Ashrafunnessa, Associate Prof. Gynae Oncology, Dept. of Obs & Gynae, BSMMU
32. Dr. A.B.M Jahangir Alam, Deputy Director (Planning), DGHS.
33. Dr. Md. Ishaque Ali, Assistant Director (Per -1), DGHS
34. Dr. Md. Zakir Hossain, Secretary General, Public Health Association of Bangladesh
35. Dr. Nazneen Anwar, DPM (Research & Development), Planning Unit, DGHS, Dhaka.
36. Dr. Iyorlumun Uhaa, Deputy Representative, UNICEF.
38. Dr. Dinesh Nair, Health Specialist, World Bank, Dhaka.
39. Ms Frances Mc Conville, Health Advisor, DFID.
40. Ms Hilary Syme, 1st Secretary Development, CIDA, Dhaka.
41. Health Advisor, SIDA, Dhaka.
42. Country Director, UNDP, Dhaka.
43. Representative in Bangladesh, Food & Agriculture Organization, Dhanmondi, Dhaka.
44. Country Representative, JICA, Dhaka.
45. Health Specialist, AusAid, Gulshan, Dhaka.
46. Dr. Peter Herzig, Health Advisor, Delegation of the European Commission, Dhaka.