



Promoting **HEALTH** in Hong Kong:

A Strategic Framework for Prevention and Control
of Non-communicable Diseases



衛生署

Department of Health

中華人民共和國香港特別行政區

Hong Kong Special Administrative Region of China

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Foreword

The rapid increase in the number of people suffering from non-communicable diseases (NCD) presents one of the biggest challenges to the healthcare systems worldwide.

The Hong Kong Special Administrative Region Government is fully committed to safeguarding people's health. Our health indices are in the top league of the world. Yet, we are facing a problem of rapidly ageing population and changing population health risk profile including, for example the rising trend of obesity. It is therefore both timely and necessary to re-assess our measures taken so far for preventing and controlling NCD, and to map out the way forward so as to manage the situation more effectively and efficiently.

The success of any NCD prevention and control efforts hinges on the effective promotion of healthy lifestyles and the reduction of risk factors of NCD. All this involves attitudinal and behavioural changes which take time to make and require long-term, sustainable and combined efforts of the Government, the community and the individuals. This is particularly true because the major health risk factors are often affected by issues beyond the healthcare sector. Sustained efforts through an intersectoral approach should be the way to tackle the problem.

This NCD Prevention and Control Strategic Framework crystallises the hard work of the Department of Health (DH) and experts in different



Dr York YN CHOW, SBS, JP
Secretary for Food and Health

sectors and disciplines. It is built on current prevention themes, while drawing references from overseas experiences in health promotion and combat against NCD, as well as recommendations of the World Health Organization (WHO). The framework calls for concerted efforts in the control and prevention of our diversified range of NCD by focusing on their predisposing factors. More importantly, it also sets out directions which will help shape an environment that is conducive to the sustaining of Hong Kong people's health and well-being.

Yet, the successful implementation of the Framework would not be possible without your active participation. By choosing to live in a healthy manner, you too can contribute to our fight against the rising trends of NCD. Everyone counts!

Dr York YN CHOW, SBS, JP
Secretary for Food and Health
Hong Kong Special Administrative Region Government

Preface

Health is not merely the absence of disease, but a state of complete physical, mental and social well-being. It is a resource for everyday life.

In Hong Kong, the life expectancy at birth is much longer than most other countries and our children are amongst the least likely to succumb during childhood. However, with an ageing population, we just cannot underestimate the health challenges ahead. With longevity, the number of people coming down with NCD such as diabetes mellitus, heart diseases, cancer, accidents and injuries keeps growing, bringing increasing burden to individuals, their families and friends, and also society at large.

Of the 58 million deaths worldwide in 2005, the WHO reckoned that approximately 35 million were caused by NCD. There is more and more evidence that many NCD are the results of how we lived our lives, such as consumption of unhealthy foods, heavy alcohol drinking, lack of exercise, and smoking. All these habits are avoidable and thus most NCD are preventable!

Although much has been done for the prevention and control of NCD, there is scope for a more coordinated approach for better health returns. This will require the Government, public and private sectors and the community to work hand in hand to build up an environment that makes healthier choices easier ones.



Dr PY LAM, JP
Director of Health

The purpose of this document is to provide an account of overarching principles for the prevention and control of NCD. It also sets the scope, vision, goals and strategic directions for NCD prevention and control in Hong Kong.

Already, there is consensus amongst international health authorities that the present NCD situation is like that of an epidemic and must be dealt with like any public health emergency. Therefore, I am urging every sector in the community to consider, understand and support this framework document. Working in partnership, we can make Hong Kong - Asia's World City - a healthier place to live.

Dr PY LAM, JP
Director of Health
Hong Kong Special Administrative Region Government



Executive Summary

Executive Summary

Hong Kong's health indices rank among the best in the world. Like many developed economies, however, Hong Kong faces the challenges posed by changes in health risk profile with her ageing population. An increasing disease burden from NCD is evident.

2. Unfortunately, NCD risk factors such as unhealthy diet, physical inactivity and tobacco use are not uncommon behaviours. Moreover, such lifestyle and the resulting disease clusters are more common amongst the poor and socially disadvantaged. To tackle the situation more effectively and efficiently, the Government has to develop an integrated strategic framework to reduce this health gap. The sharing out of responsibilities amongst the Government, public and private sectors, and the community should be a better way to address the challenge ahead.

Development of the Strategy

3. In preparing the strategic framework on prevention and control of NCD in Hong Kong, DH has held an Expert Group Meeting with over 40 participants from various disciplines and sectors.
4. While adopting a number of guiding public health concepts, references have also been made to the work of WHO and other countries.

Guiding Concepts

5. The following guiding public health concepts have been used in building the framework —
 - viewing health from a public health perspective;
 - understanding health determinants;
 - describing cluster of risk factors;
 - adopting the life-course approach;
 - identifying preventive strategy;
 - balancing population-wide versus individual-based approaches;
 - considering health disparity;
 - recognising the importance of health literacy and social marketing in communicating health messages; and
 - setting health priority.

Global Perspective on NCD Prevention and Control

6. The Global Strategy for Prevention and Control of Chronic NCD endorsed in 2000 by the 53rd World Health Assembly provides important guidance for the development of the local framework. While the Strategy places major emphasis on health promotion and disease prevention, it also recognises the opportunities for health gain in the development of a more systematic approach to NCD control in the context of hospital care and healthcare reforms. The work undertaken in other countries, such as Canada, United Kingdom, Sweden, Australia and Singapore, has also provided valuable references for the development of this document.

Local Situation

7. Research has identified that certain unhealthy behaviours such as unhealthy eating habits, physical inactivity and tobacco use, as well as biomedical risk factors including overweight and obesity, hypertension or suboptimal blood lipid and sugar profiles are common in the local population. With ageing population, widening social disparity and changing environmental determinants of health, more people are expected to suffer from NCD as we move into the future.
8. In 2006, approximately 61% of total registered deaths in Hong Kong were attributed to four major preventable NCD. They were cancer (32.3%), heart diseases (15.0%), stroke (8.8%) and chronic lower respiratory diseases (5.1%). In terms of premature death which is measured by the number of potential years of life lost (PYLL) at age 75, cancer ranked first and accounted for two-fifths of the total PYLL, followed by injuries and poisoning which were responsible for one-fifth in 2006.

The Strategic Framework

Scope

9. In Hong Kong, a limited number of NCD account for a significant proportion of disease burden on the community and healthcare system. At the same time, several risk factors work together to predispose and give rise to these diseases. Accumulated knowledge and experience in health promotion and disease prevention shows that strategically focused interventions on a "cluster" of modifiable behavioural risk factors and environmental determinants can induce parallel changes in those biomedical risk factors, thereby reduce the risk of developing NCD. To optimise health gains, this strategic framework will focus on the major risk factors that are potentially preventable or modifiable and have significant impact on the health of the Hong Kong population.

Vision

10. Having a clear vision is essential to any strategy as it provides focus and also serves to remind people of the long-term purposes of their work. With successful implementation of the strategic framework, it is envisioned that Hong Kong will have a **well-informed population** that is able to take responsibility for their own health, a **caring community** that integrates public and private sectors to ensure healthy choices for the public, a **competent healthcare profession** that views health promotion and preventive medicine as priorities, and a **sustainable healthcare system** that incorporates strong elements of health promotion, disease prevention and curative care for our people, thereby **significantly reducing the toll of disease burden including disability and premature death related to NCD**.

Goal

11. For the above vision to be realised, the goals of this NCD strategic framework would be to —
 - create an environment conducive to promoting health;
 - engage the population in promoting their own health as well as the health of their families and communities;
 - prevent and/or delay the onset of NCD for individuals and population groups;
 - reduce the progression and complications of NCD;
 - reduce avoidable hospital admissions and healthcare procedures; and
 - provide high quality care for NCD in healthcare settings in order to maintain health and halt disease progression.

Strategic Direction

12. To achieve the set goals, six strategic directions have been identified for focusing the attention, resources and actions at areas in where investments in NCD prevention and control can bring the greatest return in terms of health outcomes.

Direction 1

- Support new and strengthen existing health promotion and NCD prevention initiatives or activities that are in line with this strategy

Direction 2

- Generate an effective information base and system to guide action across the disease pathway

Direction 3

- Strengthen partnership and foster engagement of all relevant stakeholders

Direction 4

- Build the capacity and capability to combat NCD

Direction 5

- Ensure a health sector that is responsive to the NCD challenges and to improve the system of care

Direction 6

- Strengthen and develop supportive health promoting legislation

Key Elements for Implementation

13. This NCD strategic framework is built for the health of Hong Kong people. The key elements for implementation fit an acronym PEOPLE that is illustrated below —

Partnership: Drawing together the strengths of people from various sectors with different knowledge and skills

The determinants of health are so pervasive that health promotion and disease prevention requires whole community involvement, extending beyond the scope of the health sector into the realms of environment, transport, housing, education, employment, etc. Thus, partnership will be a logical way of working, drawing people from different backgrounds, culture and expertise. Furthermore, implementation can only go smoothly and successfully if it has the backing and involvement of key stakeholders. Collaboration maximises strengths and minimises weaknesses, aiming towards a product that exceeds the sum of its parts. For effective action, there is a need for concerted efforts across a broad public health front, requiring both intrasectoral and intersectoral collaboration.

Environment: Linking health promotion and disease prevention with the total environment

An important determinant of people's health is the environment in which people live, learn and work, including the social context against which they interact. The society should create a health supporting environment which would enable people to make healthy choices and live healthily. As such, the "setting" approach is better able to support local health promotion actions by bringing together policy support, intersectoral collaboration and community action in addressing socio-economic factors that underpin all facets of human activity. Examples of healthy setting approaches include healthy cities, healthy schools, healthy workplaces, healthy restaurants and healthy markets.

Outcome-focused: Ensuring optimal investment of resources with greatest health gains through monitoring of health outcomes

Achievements in improving population health hinge on monitoring health outcomes and determining the extent to which health gains are attributable to the interventions. Healthcare providers, public health practitioners and administrators need to document and demonstrate how much of the NCD disease burden has been alleviated after the integrated mechanism for preventing and controlling NCD has been put in place locally. Furthermore, health and associated outcomes have to be communicated with stakeholders and the people of Hong Kong.

Population-based intervention: Placing emphasis on whole population for collective health benefits

Recognising that many interrelated factors contribute to health, population-based intervention seeks to promote healthy behaviours, control the determinants of incidence and achieve an overall lowering of the risk in the total population. Since unhealthy lifestyle practices and NCD are common among the local population, even modest changes in risk factor levels through population-based interventions can be expected to yield significant improvements in public health.

Life-course approach: Addressing the cumulative adverse effects by fostering health from womb to tomb

The risks of developing NCD accumulate with age and are influenced by factors acting at all stages of life. Thus, interventions throughout life can help prevent progress of diseases. Those that secure growth and development in early life, and maintain the highest possible level of health and function in adult life are important in reducing the risk of NCD in later years. By utilising opportunities at all life stages, it may be possible to achieve reduction in premature deaths in the highly productive stages of life, fewer disabilities, more people enjoying better quality of life, more people participating actively as they age, and lower costs of medical treatment and care services.

Empowerment: Giving everyone the opportunity to achieve one's full potential

Empowerment, as a core method for health promotion and disease prevention, is a process through which people gain control over decisions and actions that influence health. The public should be empowered so as to be able to make healthy behavioural choices, equipped with appropriate skills to interact effectively with healthcare services, and provided with opportunities to assume responsibility and participate in self-care. In this connection, there is a need for those working in the health and non-health sectors to possess the knowledge and skills in health promotion and disease prevention, which include behavioural modification, early detection of diseases, proper use of medical and health services and on-going support for those who are ill.

Making it Happen

14. To oversee the development and overall progress of the implementation plan, a high-level steering committee which comprises representatives of the Government, public and private sectors, academia, professional bodies, industry and other local key partners will be set up. Under this, respective working groups will be formed to advise on priority actions, draw up targets and action plans, including practical guides, tools and specifications of how the various sectors of the society can participate as partners.
15. To tackle imminent problems caused by the leading risk factors of overweight and obesity, heart diseases and diabetes mellitus, a working group on diet and physical activity will first be established in 2008. Working groups on other priority areas can be set up in phases thereafter. In the meantime, existing services and programmes in all involved sectors will continue and be strengthened.

Call for Support

16. This strategic framework is a call for the whole community to consider and take appropriate actions for the prevention and control of NCD. While the Government will have a leading role in taking the agenda forward and mobilise intersectoral collaboration for health promotion and disease prevention, the working groups are expected to deliberate action plans, including practical guides and tools that target key NCD issues.
17. By establishing cost-effective prevention and control strategies along the line suggested in this framework, many aspects of life could be improved for our population. The outcome on health could be enhanced and the pressure on NCD treatment and rehabilitation expenditures could also be relieved. It is envisaged that successful delivery of the strategy will contribute to the development of a more sustainable healthcare system, with better integration of preventive and curative care services in achieving health for all and by all.
18. It is time for the Hong Kong community to act together in combating NCD. We urge every sector and individual to support this strategic framework and join hands to make Hong Kong a healthier place to live.

1



Introduction

1



- 1.1 Good health is important in life, well sought after and cherished by all. Other than the provision of healthcare services, health is also determined by socio-economic and environmental factors, our families as well as the lifestyle choices we make.
- 1.2 With growing affluence, the world's population is living longer in terms of life expectancies in general but at the same time the lives of far too many people globally are being blighted and cut short by NCD*, such as cancer, heart diseases, stroke, chronic respiratory diseases and diabetes mellitus, which are largely preventable (Exhibit 1). Of the 58 million deaths worldwide in 2005, WHO estimated that approximately 35 million were caused by NCD.

* Though the definition of what should be regarded as NCD varies widely, the term NCD is often reserved for a group of preventable diseases which are characterised by complex causalities and linked by common risk factors, long latency periods, prolonged courses of illness, impairments or disabilities and in most cases, the unlikelihood of achieving complete cure.



Exhibit 1: A Glimpse of the extent of the global problem^{1, 2}:

- Heart attacks and strokes kill about 12 million people every year (7.2 million due to ischaemic heart disease and 5.5 million due to stroke). Another 3.9 million people die annually from hypertension and other heart conditions.
- More than 11 million people are diagnosed with cancer per year and cancer causes over 7.5 million deaths every year. It is estimated that there will be 16 million new cases annually by 2020.
- An estimated 177 million people are affected by diabetes mellitus, the majority by type 2 diabetes mellitus. In 2005 alone, diabetes mellitus killed over 1.1 million people.
- Over 4 million people die of chronic respiratory diseases every year.
- More than one billion adults worldwide are overweight, and at least 300 million of them are obese. Each year, 2.6 million people die as a result of being overweight or obese.

- 1.3 With the good effort of our high-quality healthcare services, Hong Kong's health indices are among the best in the world, ranking the top on many and second on a few. A baby boy born today could expect to live about 79 years and a baby girl 86 years; the infant mortality rate and the under-5 mortality rate have been declining over the past two decades, with the former at the very low level of 1.8 per 1 000 live births and the latter 0.7 per 1 000 population aged under 5 in 2006. However, Hong Kong is subject to the increasing threat from NCD.
- 1.4 NCD account for most of the disease burden in Hong Kong and the burden is expected to continue to rise in the decades ahead owing to multiple factors, including the rapidly ageing population and changing risk profile in the population. This presents a major public health challenge because of the significant burden they place on individuals, families, communities and health services. There is convincing evidence that significant economic benefits can be achieved by improving health in the community through preventing NCD and treating them effectively. To halt and reverse the trend in NCD, a strategic approach with concerted efforts and effective means are required.

To Make a Difference

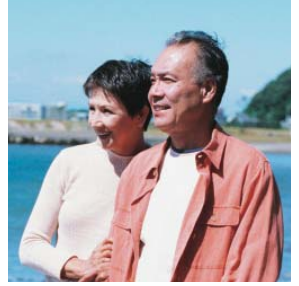
- 1.5 NCD prevalence has been increasing and many of the health problems, including overweight and obesity, cannot be solved by acute-care interventions alone. To meet the challenges, we should look afresh at how the healthcare services can be re-orientated to tackle ill health more strategically and effectively. In particular, more attention needs to be given to what keeps people healthy rather than what makes them sick.
- 1.6 Promoting health and well-being is a joint responsibility that everyone has a role to play and different sectors, other than the health sector, of the society can contribute in various ways of encouraging people to lead a healthy life. While the Government seeks to provide legislative frameworks and policies, the business sector can facilitate healthy choices, control health hazards and promote healthy workplace. The non-government organisations (NGOs) and community groups may implement health promotion programmes targeting on population subgroups and individuals to take care of their own health and adopt healthy lifestyle.
- 1.7 Achieving a high-performance healthcare system will also need containing the healthcare expenditure on NCD in the long term. Furthermore, investment in preventive care and improving the population's health is a key success factor in economic prosperity. In fact, the report of *Your Health Your Life: Healthcare Reform Consultation Document (2008)*³ has already highlighted the importance of putting more emphasis on primary healthcare, especially preventive care. It is opportune for us to renew our resolve in this respect in formulating strategies on NCD prevention and control.
- 1.8 This document aims to provide a framework for the prevention and control of NCD in Hong Kong which focuses upstream to address risk factors as root causes of ill health and on how NCD could be managed more effectively. Through the subsequent chapters, we first introduce the relevant public health concepts and present the works done by WHO and other countries. Important facts and figures from local perspectives are then brought together for highlighting the significant burden of NCD, pinpointing the risk profile of our population, and outlining health promotion and disease preventive activities in Hong Kong. Building on these pillars and evidence, a strategic framework for preventing and controlling NCD for Hong Kong together with key elements for implementation and strategic management infrastructures is proposed.

2



Conceptual Basis for Prevention and Control of Non-communicable Diseases

2



2.1 The following guiding public health concepts have been used in building of the framework —

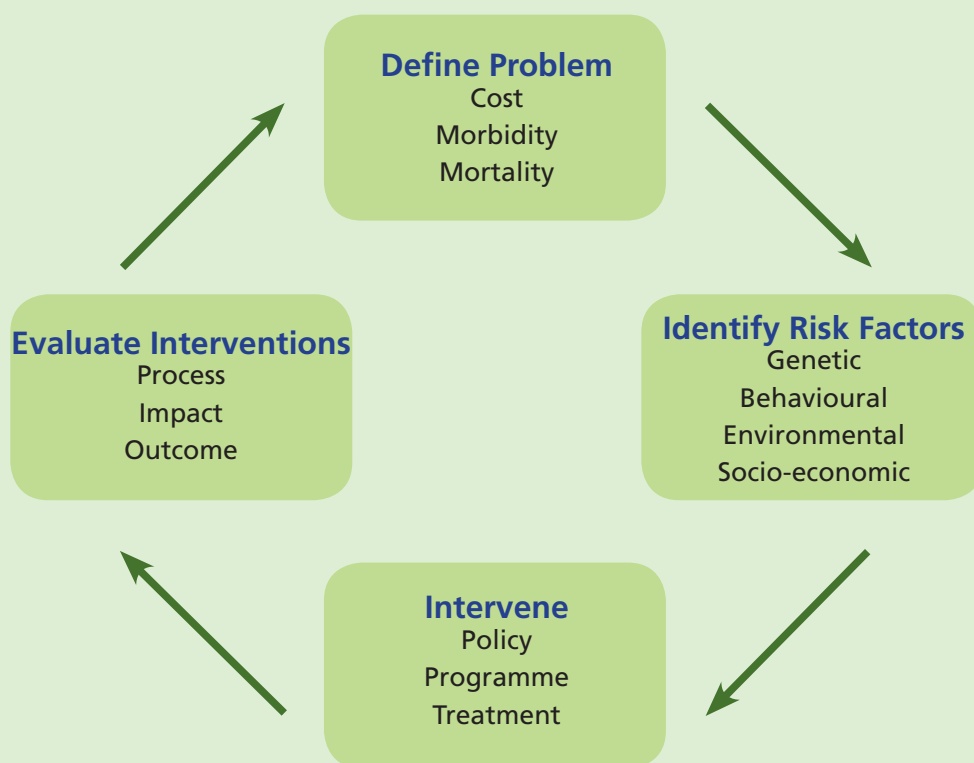
- viewing health from a public health perspective;
- understanding health determinants;
- describing cluster of risk factors;
- adopting the life-course approach;
- identifying preventive strategy;
- balancing population-wide versus individual-based approaches;
- considering health disparity;
- recognising the importance of health literacy and social marketing in communicating health messages; and
- setting health priority.



Public Health Perspective

- 2.2 Public health can be described as "the science and art of preventing disease, prolonging life and promoting health through the organised efforts and informed choices of society, public and private organisations, communities and individuals".¹ A public health approach (Exhibit 2) which focuses on population and risk factors rather than on individuals' symptoms or diseases is important to achieve the goal of promoting health and preventing diseases, addressing the underlying factors that determine health, and increasing the effectiveness and efficiency of healthcare system.

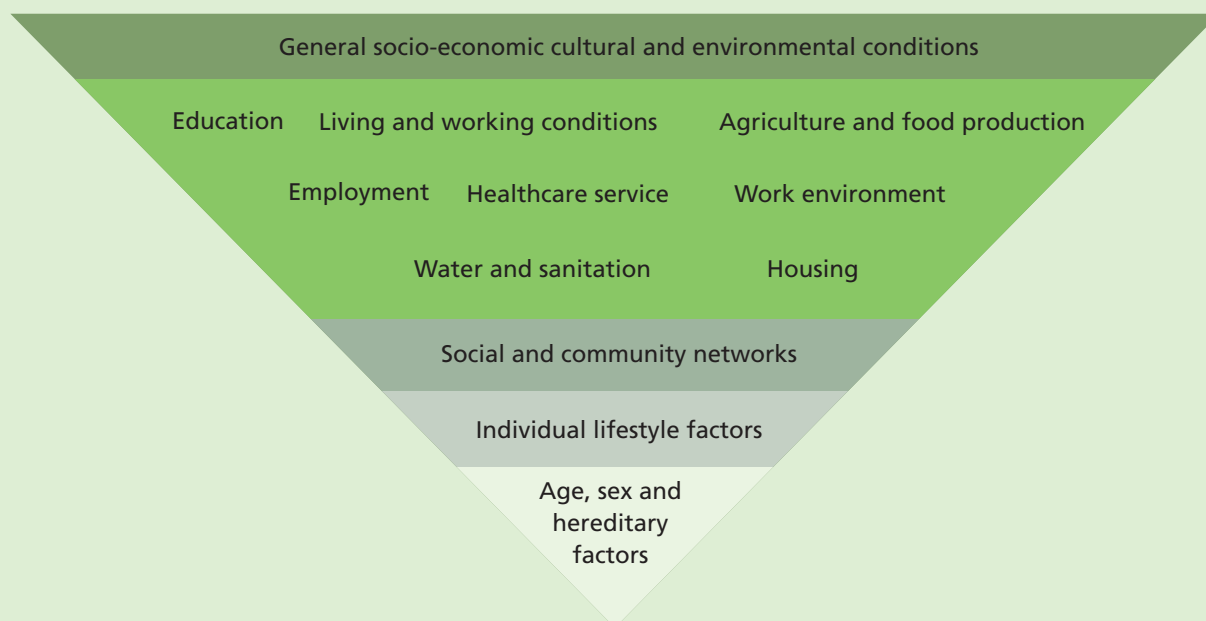
Exhibit 2: Public health approach to disease control



Health Determinant

- 2.3 Health status goes beyond the mere presence or absence of disease. Health in the broader sense includes physical, psychological and social well-being, a culture of egalitarianism and a sense of belonging within a community, along with equity in access to quality health and relevant social services.² For public health policy to be optimal, it is important that we have a good understanding of the underlying factors that determine health.
- 2.4 The health experience of an individual or a community is influenced by a variety of factors and conditions (Exhibit 3). The factors which have been found to have the most significant influence on health - for better or worse - are known as 'the determinants of health'. Broadly speaking, these health determinants cover people's genetic predisposition, lifestyles and other behavioural factors, social relationships with families, friends and community, and the powerful forces of the general socio-economic and cultural environment where they learn, play, work and live. These different determinants operate together to influence health and disease status at both the population and individual levels.³ While certain health determinants such as an individual's genetic makeup and the ethnic composition of the population are non-modifiable, many are avoidable or preventable.

Exhibit 3: The wider determinants of health



(Adapted from Dahlgren and Whitehead 1991)

Cluster of Risk Factor

- 2.5 NCD are attributed to the complex web of factors described above. Many of these diseases share common behavioural risk factors. For example, four of the most important NCD - diseases of the circulatory system, cancer, chronic respiratory diseases, and diabetes mellitus - share three major behavioural risk factors, namely smoking, physical inactivity and unhealthy diet, which are mediated through common biomedical risk factors, notably excess weight, hypertension and adverse lipid profile.⁴⁻⁶ Alcohol misuse also contributes to the health burden of cancer, heart diseases and injuries and poisoning (Exhibit 4).

2.6 Preventive actions addressing these common behavioural risk factors will improve the community's health profile, which includes optimal body weight, blood pressure and lipid profile. The community will then be benefited from lower incidence of diseases and better health condition.

Exhibit 4: Relationship between common risk factors and major NCD

Disease/ condition	Risk Factors						
	Behavioural				Biomedical		
	Smoking	Physical inactivity	Unhealthy diet	Alcohol misuse	Excess weight	Hyper-tension	Adverse lipid profile
Diseases of the circulatory system	+	+	+	+	+	+	+
Cancer	+	+	+	+	+		
Chronic respiratory diseases	+		?				
Diabetes mellitus	+	+	+		+	#	#
Injuries and Poisoning		+		+	?		
Excess weight	+	+					
High blood pressure	+	+	+	+			
Adverse lipid profile	+	+			+		

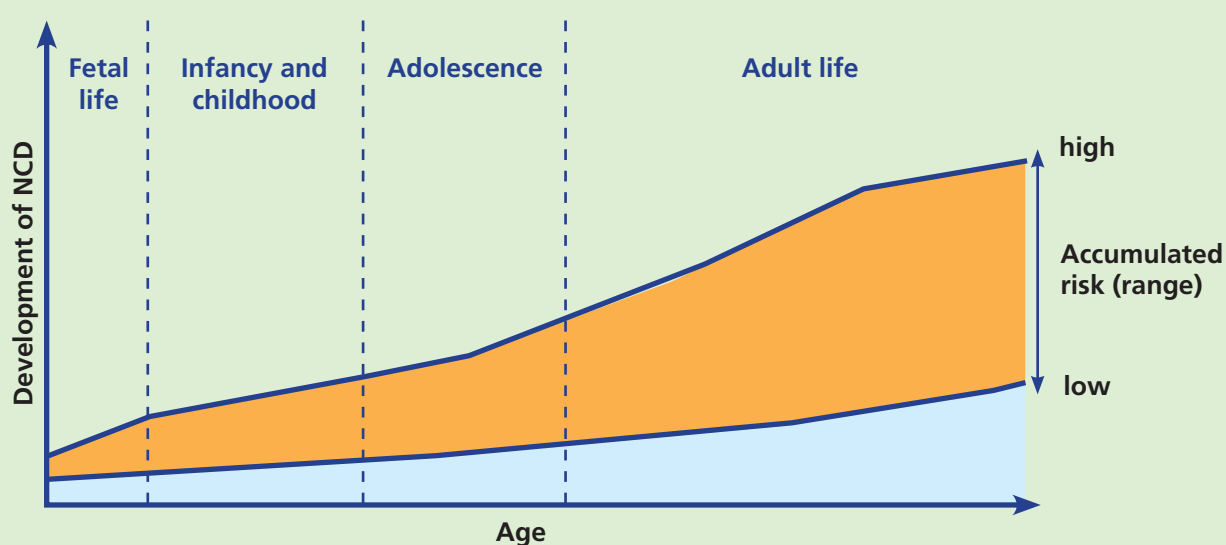
Keys: + Established risk factor ? Possible risk factor # Association/Co-morbidity

(Adapted from Brownson et al. Chronic Diseases Epidemiology and Control, 1998; National Public Health Partnership. Preventing Chronic Disease: A Strategic Framework (Background Paper), 2001; WHO. Global Strategy for the Prevention and Control of Non-communicable Diseases, 2000)

Life-course Approach

- 2.7 Individuals are influenced by factors acting at all stages of the life span and the risk of developing NCD accumulates with age (Exhibit 5). Life-course approach acknowledges such interactive and cumulative impact of social and biological influences throughout life, particularly the importance of early life factors predisposing to NCD in later years.⁷

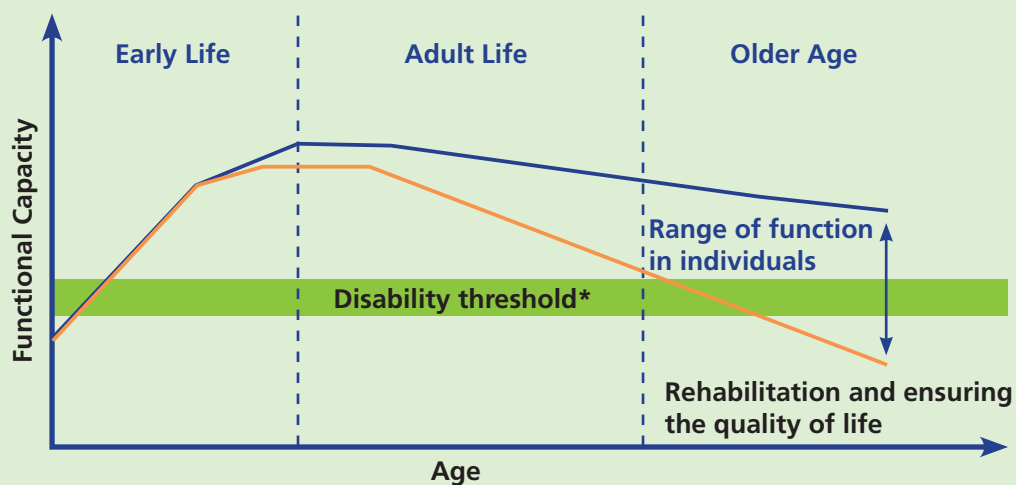
Exhibit 5: Scope of NCD prevention - a life-course approach



(Source: Aboderin et al, 2002)

- 2.8 Utilising opportunities at each stages of life, it may be possible to have fewer disabilities and reduce premature deaths. The functional capacity, such as muscular strength and cardiovascular output, accumulates in childhood and peaks in adulthood, and then declines in older age (Exhibit 6). As the rate of functional capacity decline is largely determined by behavioural factors, adopting a healthy lifestyle will help maintain or prevent early decline in functional capacity during older age. For example, stop smoking at age 60, 50, 40 or 30 gains about 3, 6, 9 and 10 years of life expectancy respectively.⁸ Thus, it is important to secure growth and development in early life, maintain the highest possible level of function in adult life as well as maintain independence and prevent disability in older life.⁹

Exhibit 6: Maintaining functional capacity over the life course



Note: * Changes in the environment can lower the disability threshold, thus decreasing the number of disabled people in a given community

(Source: Kalache and Kickbusch, 1997)

Preventive Strategy

2.9 The planning of NCD prevention and health promotion programmes is based on the three levels of prevention: primary, secondary, and tertiary.

Primary prevention

2.10 Primary prevention is concerned with measures that prevent the onset of disease. Some of the important strategies under this category include health education, immunisation, environmental measures and social policy (Exhibit 7). The ultimate goal is to bring about a change in behaviour or factors affecting individuals so that diseases will be prevented from developing. This approach has contributed to some notable examples of successful intervention in public health especially those related to NCD.

Exhibit 7: Healthy eating — "2 plus 3 A Day"



Low fruit and vegetables consumption is among the top ten risk factors for global mortality, and up to 2.7 million lives could potentially be saved each year with sufficient global fruit and vegetables consumption. The WHO recommends a minimum of five servings of fruit and vegetables a day, or a daily intake of at least 400 grams of fruit and vegetables, to obtain optimal health benefits.¹⁰

The DH launched a territory-wide "2 plus 3 A Day" campaign in June 2005. It aims to raise community awareness on healthy diet and promote the consumption of at least two servings of fruit and three servings of vegetables every day as part of a balanced diet in order to promote optimal health. Health messages are disseminated via various channels including mass media, pamphlets and recipes distribution, exhibition boards display, posters and 24-hour health education hotline and the internet (<http://2plus3.cheu.gov.hk>) and different activities such as health talks, colouring and drawing contest, experience sharing and food diary competitions.

Secondary prevention

- 2.11 Secondary prevention refers to stopping the progression of a disease after its occurrence, by early detection and diagnosis followed by prompt and effective treatment. The prevention of relapse or recurrence of disease conditions through intervention or attention to lifestyle improvement measures, e.g. smokers to quit smoking after a heart attack is also grouped under this category. Screening, which is one form of secondary prevention, has been more accepted by the general public as a means to "prevent" diseases in recent years (Exhibit 8).

Exhibit 8: Health check-up package — How to choose?

The main purpose of health check is to detect diseases at an earlier stage, for the better control of diseases and hence to decrease risk of complications and reduce mortality in some cases. Only a few chronic illnesses can be detected by health check. A comprehensive health check should include history taking, health risk assessment, physical examination and appropriate investigations.

Certain investigations are considered "basic". Some investigations are more expensive and have potential risks, and thus they are only suitable for those who are at higher risk of developing that particular disease. In practice, there is no "plan" that suits every person. On the other hand, unnecessary investigation will waste money and time and cause unnecessary fear and anxiety. Therefore, it is advisable to consult family doctors to recommend types and frequency of health check.

As investigation results can be false-negative or false-positive, the results should be evaluated and interpreted by doctors. No single health check-up programme can check all diseases/conditions. People should not rely solely on health screening.

Most importantly, to prevent diseases, people should always pursue healthy lifestyles by avoiding smoking, maintaining normal body weight, taking regular physical activities and healthy diet. At times when they are in doubt about their health, medical advice should be sought.

- 2.12 However, special consideration and careful evaluation are necessary before population screening policies for the public are to be introduced. The factors which need to be considered include the prevalence of the condition, sensitivity and specificity of the screening tests (i.e. identifying how many false-positives and false-negatives may be detected because of the test), the availability of effective treatment, and any inherent hazards of the screening test itself (Exhibit 9).¹¹

Exhibit 9: Cervical cancer screening



Cervical cancer is one of the few cancers where pre-cancerous lesions are detectable and treatable. To date, cervical smear is the only test known to reduce cervical cancer incidence and death effectively, particularly with organised screening programmes. Along with appropriate follow-up treatment, the test can prevent cervical cancer from developing in many cases.

Cervical screening services have been available in Hong Kong for many years, yet women in general have only gone for opportunistic screening. A cost-effectiveness analysis of alternative cervical cancer screening strategies in Hong Kong has shown that organised screening with conventional (or liquid-based) cytology every 3 years can produce over 90% reduction in the lifetime risk of developing cervical cancer compared to no screening, whereas opportunistic screening can only generate a corresponding reduction of 40%.¹²

Since March 2004, the DH launched a territory-wide Cervical Screening Programme (CSP) for women in collaboration with other service providers. The CSP recommends 3-yearly smears following two normal consecutive annual smears. However, women at higher risk (e.g. history of human papillomavirus infection or low immunity) may be screened more frequently as advised by their healthcare providers.

Tertiary prevention

- 2.13 Tertiary prevention refers to the rehabilitation of patients with an established disease to minimise residual disabilities and complications and maximise potential years of enjoyable life, thereby improving the quality of life even if the disease itself cannot be cured (Exhibit 10).

Exhibit 10: Improving quality of life — Cardiac rehabilitation

Cardiac rehabilitation is a programme supervised by healthcare professionals to help patients with cardiac diseases recover quickly and improve their overall physical and psychological functioning. Studies have shown that comprehensive cardiac rehabilitation is cost-effective and can substantially improve the health of people with ischaemic heart disease.^{13, 14}

The overall goals are to reduce the risk of another cardiac event and to enable patients to live productively. Cardiac rehabilitation programmes usually include patient education and counselling, exercise training, risk factor modification, vocational counselling and emotional support. When supervised by a physician, cardiac rehabilitation is helpful to patients with recent heart attack and heart failure. Combining all aspects of cardiovascular rehabilitation in appropriate patients, it can improve functional capacity and quality of life, reduce risk factors and create a sense of well-being and optimism about the future.

In Hong Kong, cardiac rehabilitation services are available in both public and private sectors.

Population-wide versus Individual-based Approach

- 2.14 The distribution of health determinants and risks in a population has implications for successful prevention strategies. While a population-wide strategy for prevention targets at controlling the determinants of health in the population as a whole, an individual-based (also known as high-risk) strategy for prevention identifies high-risk susceptible individuals and offers them some individual protection.¹⁵
- 2.15 The two approaches have their inherent pros and cons (Exhibit 11). The population-wide approach seeks to promote healthy behaviour to achieve an overall lowering of the risk in the entire population. The potential gains are comparatively extensive but the effect on each participating individual may not be very significant. In contrast, the individual-based approach may appear more appropriate to the individuals. However, it only has a limited effect at a population level and it does not alter the underlying causes of illness. Such an approach also requires continuous and expensive screening processes to identify the high-risk individuals.¹⁶

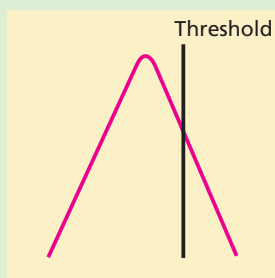
Exhibit 11: Population-wide approach versus individual-based approach

	Population-wide approach	Individual-based approach
Benefit is high for	The whole population	The individual
Subject motivation	Low	High
Doctor motivation	Low	High
Benefit-risk ratio	Worrisome	Favourable
Screening costs	No/Low screening costs	High
Depth of solution	Radical	Palliative, temporary

(Source: Rose 1985)

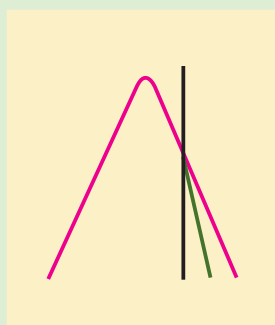
- 2.16 Cardiac rehabilitation programme, which is an example of individual-based approach for prevention, is known to be effective in reducing cardiac deaths. Patients are encouraged to exercise and change their lifestyles after having a heart attack or other heart problems and they can be benefited from tailored lifestyle programmes. A systematic review reported that total cardiac mortality was reduced by 26% to 31% in the exercise only and comprehensive cardiac rehabilitation groups.¹⁴ Another study showed that lifestyle intervention using such approach reduced the risk of people with impaired glucose tolerance in developing diabetes mellitus by 58% over 6 years.¹⁷
- 2.17 With regard to effective interventions using population-wide approach, raising the duties on tobacco products has resulted in a large improvement in population health because fewer people smoke as the price of tobacco rises. Reducing the salt content of processed foods available for sale in the markets, either through legislation or self-regulation of the industry, has resulted in a corresponding reduction in age-specific and sex-specific mean systolic blood pressure.^{18,19}
- 2.18 When NCD are prevalent in the community, even modest changes in risk factor levels through population-wide approach will yield significant public health benefit. In light of the inherent benefit of individual-based approach for people at high risk, it should also be included in the overall prevention and control of NCD (Exhibit 12).¹⁷ A key challenge is to achieve a balance between individual-based and population-wide approaches.

Exhibit 12: Population-wide and individual-based strategies



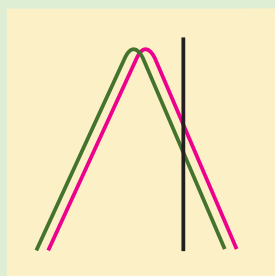
Original distribution

The level of risk factors is normally distributed within the population as illustrated by the red curve — It means that majority of people have risk factor level below the threshold, while minority are above the threshold.



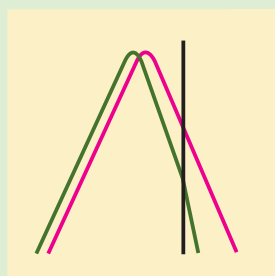
Individual-based approach

This approach concentrates its efforts on the high-risk individuals with risk factor level above a certain threshold. When preventive measures are targeted at these identified people at high-risk, the distribution of risk factor level can only shift a little to the low level direction as indicated by the green curve.



Population-wide approach

This strategy seeks to shift the whole distribution of risk factor level to the low level. The whole distribution of risk factor level, as indicated by the shifted green curve towards left to lower values.



Combined strategies

Therefore, combining individual-based and population-wide approach will shift the distribution of risk factor level to a lower range that yield better health outcome among the whole population.

(Source: Rose 1985)

- 2.19 There are many examples worldwide on successful mix of population-wide approach and individual-based approach for preventing and controlling NCD (Exhibit 13).

Exhibit 13: Successful mix of population-wide and individual-based NCD prevention programmes

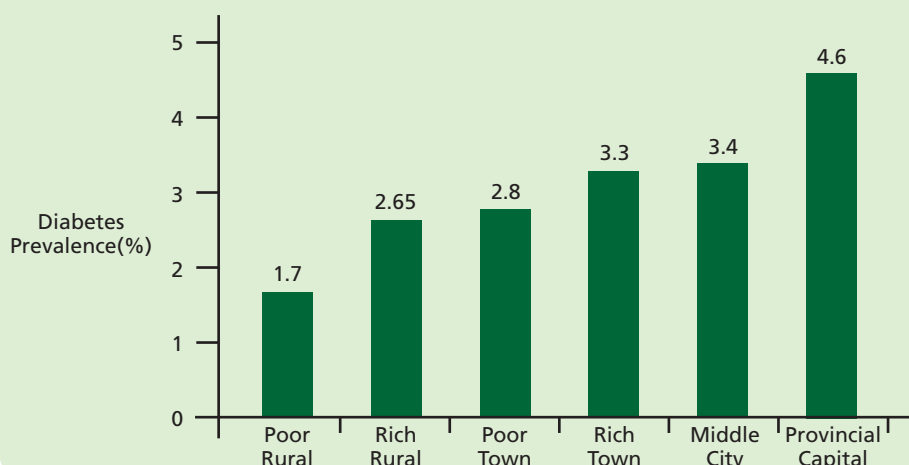
Communities can make major gains once becoming involved in reducing health risk behaviours associated with many chronic diseases. Some of the most notable cardiovascular diseases prevention trials are the Stanford Three-Community Project,²⁰ North Karelia Project,²¹ Stanford Five-City Project,²² Minnesota Heart Health Program²³ and the Pawtucket Heart Health Program.²⁴ These projects have made known that cardiovascular diseases are preventable through modifications of established risk factors including cigarette smoking, elevated blood lipids, elevated blood pressure and sedentary lifestyle.

The basic premise for this work is that community-wide strategies lead to a reduction in disease rates through changes in individual and community risk factors. Each provides valuable models, diversified methodologies addressing awareness and education, skill-building and advocacy, and strategies for planning and implementing community-based/led programmes. These programmes are cost-effective, easily transferable and have dramatic impacts on health policy development.²⁵

Health Disparity

- 2.20 Disparity in health usually refers to a broad range of differences in health status between population subgroups. Although some disparities in health are inevitable because of genetic and biological make-up in individuals, health disparities are often attributed to differences in personal lifestyle, exposure to material resources and opportunity of receiving healthcare services.²⁶ For example in China, as the result of increasing affluence and the adoption of western diet, people living in the cities had a 2.7-fold increase risk of having diabetes mellitus than those living in poor rural area (Exhibit 14).²⁷
- 2.21 Striving to minimise the health gap between population subgroups has become a challenge in public health.² Thus, an important public health task is to identify the underlying health determinants attributable to health disparities and develop responsive policies for their reduction.

Exhibit 14: The widening health gap



Analysis of diabetes mellitus prevalence in China showed the proportion of people living with diabetes mellitus increased from 1.7% in poor rural areas to 4.6% in provincial capital of China.

(Source: Ng et al, 2002)

Health Literacy and Social Marketing

- 2.22 Health literacy is the ability to read, understand, and act on healthcare information. Study has indicated that poor health status is disproportionately high among people with low health literacy.²⁸ For enhancing the population health, therefore, the health literacy of the whole population needs to be increased.
- 2.23 Social marketing, as an effective health promotion method, can motivate people to use health information and change behaviour in ways that promote and maintain good health. Over years, many places including Hong Kong have used social marketing campaigns for health promotion (Exhibit 15).

Exhibit 15: Use of social marketing strategies for health promotion

Since its re-organisation in 2002, the Central Health Education Unit (CHEU) of DH has strengthened the use of social marketing strategies to inform and influence the public on options that enhance health. For example, CHEU collaborated with the media to produce and broadcast various campaigns on different important health issues such as the "All for Health" campaign to promote the concept of positive health, as well as international health initiatives including the "World No Tobacco Day", "World Health Day", "World Breastfeeding Week", "World Chronic Obstructive Pulmonary Disease Day" and the "World Diabetes Day". Health messages have been disseminated via mixed channels with the application of social marketing in all campaigns.

Setting Health Priority

- 2.24 There is never as much funding as is needed to address all important health problems, so priorities need to be set. Priority setting is imperative for the rational utilisation of resources for public health programmes in a community. However, identification of priority health areas is not easy. Whether or not a particular disease or health condition should be focused and targeted for preventive activities depends on a number of factors (Exhibit 16).
- 2.25 Over the past two decades, some developed countries have gone through the process of identifying health priorities and started working on the identified health priority areas. For example, Australia has selected seven National Health Priority Areas for action, including asthma, cardiovascular health, cancer control, injuries prevention and control, diabetes mellitus, mental health and arthritis and musculoskeletal conditions, while the United States (US) also views heart disease and stroke, cancer and diabetes mellitus the most important health problems. We need to agree what priorities should be set in Hong Kong and what targets need to be met.

Exhibit 16: Criteria for priority setting²⁹

- Public health importance as a cause of death
- Consequences as a source of morbidity
- Financial cost to the community
- Preventability or possibility of early detection
- Potential for increase in morbidity or mortality
- Opportunity for achieving substantial health gain through cost-effective interventions
- Importance in terms of public perception

3



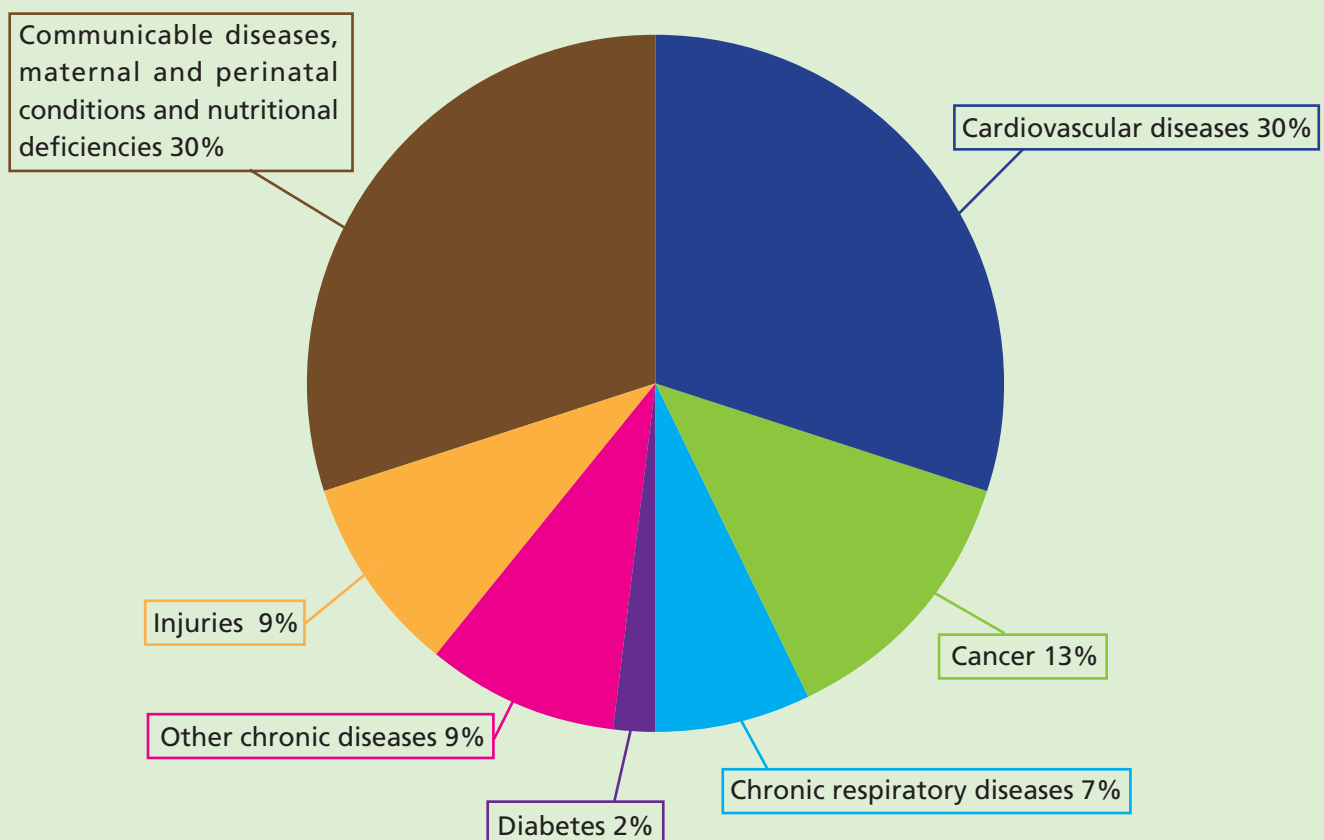
Global Perspective on Non-communicable Disease Prevention and Control



The Neglected Epidemic

3.1 NCD, including cardiovascular diseases (CVD), cancer, diabetes mellitus, chronic respiratory diseases and other chronic diseases, accounted for more than three-fifths (61%) of the estimated 58 million deaths worldwide in 2005 (Exhibit 17) and about half (46%) of the global burden of diseases.¹ The WHO projects that of 64 million people who will die in 2015, 41 million will die of a chronic disease unless urgent action is taken.

Exhibit 17: Projected main causes of death, worldwide, 2005



(Source: WHO, 2005)

3. Global Perspective on Non-communicable Disease Prevention and Control

- 3.2 The majority of the disease burden is attributable to a few risk factors which either work independently or in combination. For example, of the 7 million deaths from cancer worldwide in 2001, an estimated 2.43 million (35%) were attributed to nine potentially modifiable behavioural and environmental determinants, including overweight and obesity, low fruit and vegetable intake, physical inactivity, tobacco use, alcohol misuse, urban air pollution, unsafe sex, indoor smoke from household use of solid fuels, and contaminated injections in healthcare settings;² three-quarters of CVD can be attributed to the major risk factors, including tobacco use, inactive lifestyle, low fruit and vegetable intake, high blood pressure and high cholesterol.¹
- 3.3 Disability Adjusted Life Years (DALYs) is often used as an indicator of burden of disease to quantify and measure the state of health of a population in order to judge which interventions to improve health deserve the highest priority for action. DALYs reflects the total amount of healthy life lost, from all causes, whether from premature mortality or from some degree of disability during a period of time. For the developed countries, tobacco use is the leading risk factor, accounting for about 12% of disease burden measured by DALYs. While high blood pressure and alcohol misuse each accounts for 9-11%, high cholesterol and high body mass index each accounts for 7-8% of DALYs (Exhibit 18).³

Exhibit 18: Ten leading risk factors as percentage causes of disease burden measured in DALYs by level of development and type of affected outcome³

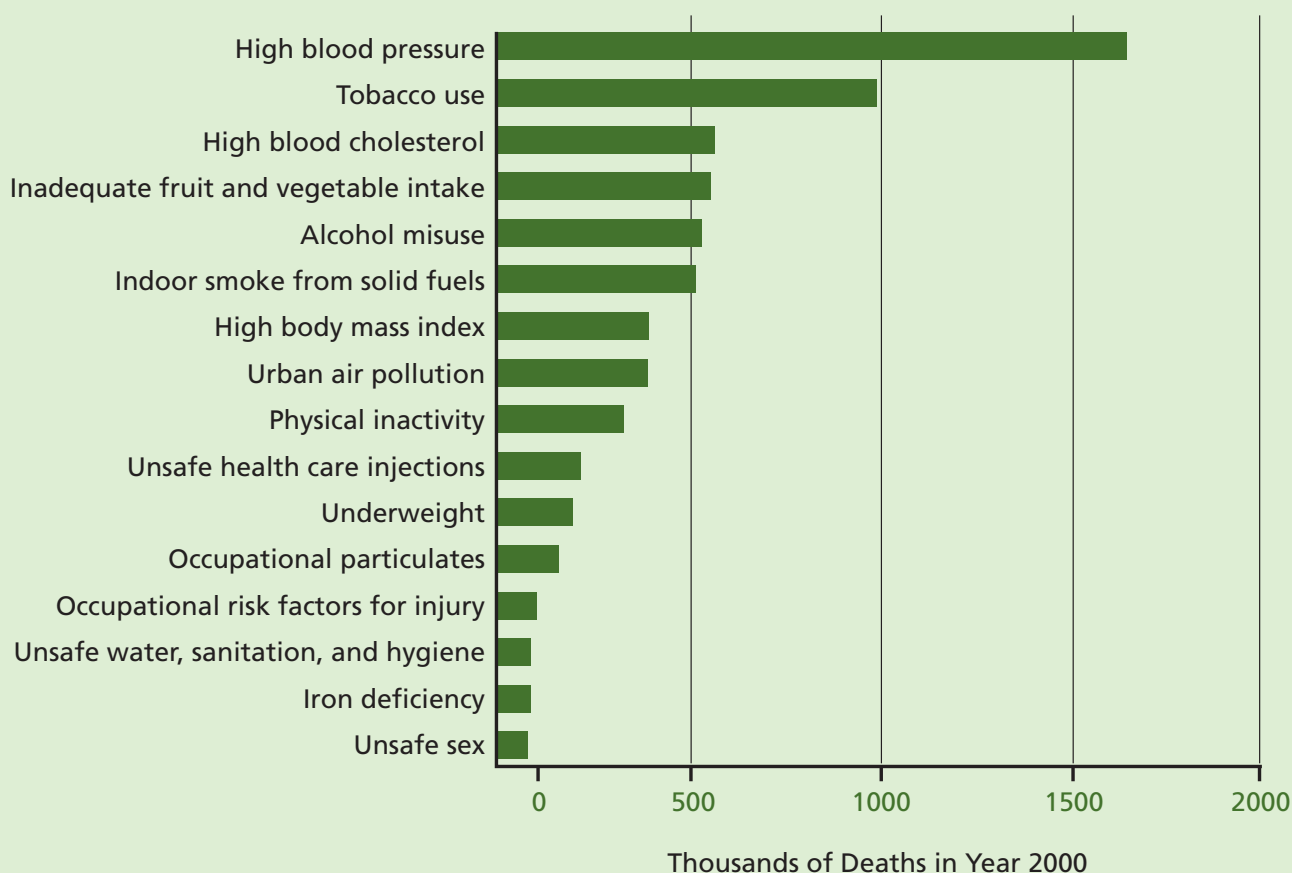
Rank	Developing countries		Developed countries
	High mortality countries	Low mortality countries	
1	Underweight (14.9%)	Alcohol misuse (6.2%)	Tobacco use (12.2%)
2	Unsafe sex (10.2%)	Underweight (5.0%)	High blood pressure (10.9%)
3	Unsafe water (5.5%)	High blood pressure (4.0%)	Alcohol misuse (9.2%)
4	Indoor smoke (3.7%)	Tobacco use (3.1%)	High cholesterol (7.6%)
5	Zinc deficiency (3.2%)	High body mass index (2.7%)	High body mass index (7.4%)
6	Iron deficiency (3.1%)	High cholesterol (2.1%)	Low fruit and vegetable intake (3.9%)
7	Vitamin A deficiency (3.0%)	Iron deficiency (1.9%)	Physical inactivity (3.3%)
8	High blood pressure (2.5%)	Low fruit and vegetable intake (1.9%)	Illicit drug use (1.8%)
9	Tobacco use (2.0%)	Indoor smoke from solid fuels (1.8%)	Underweight (0.8%)
10	High cholesterol (1.9%)	Unsafe water (1.7%)	Iron deficiency (0.7%)

(Source: World Health Report, 2002)

3. Global Perspective on Non-communicable Disease Prevention and Control

- 3.4 In the year 2000, over 1 600 000 deaths within the Western Pacific Region were attributed to high blood pressure, about 1 000 000 to tobacco use and over 500 000 each to high blood cholesterol and inadequate fruit and vegetable intake (Exhibit 19).³ In light of the fact that at least 80% of heart diseases, stroke, and type 2 diabetes mellitus, and 40% of cancer could be avoided through healthy diet, regular physical activity, and avoidance of tobacco use,⁴ the development of an integrated approach that targets major common risk factors will be the most effective way to prevent and control NCD.
- 3.5 Such integrated approach should respond not only to the need for intervention on major common risk factors aiming to reduce premature mortality and morbidity, but also to integrate primary, secondary and tertiary prevention. This can be achieved by considering what steps need to be taken along the disease pathway to start with health promotion and disease prevention, and include treatment and self care as well as engage across all sectors and disciplines.

Exhibit 19: Deaths attributable to selected leading risk factors in the Western Pacific, 2000



(Source: World Health Report 2002)

International Experience

3.6 The WHO accords high priority to prevention and control of NCD in its work programmes. The following synopsis of international experience reveals some of the successful elements for NCD prevention and control strategies that can be adopted for Hong Kong. The resolutions endorsed over the years by the World Health Assembly (Exhibit 20) serve as good references for building the Hong Kong strategic framework for the prevention and control of NCD.

Exhibit 20: WHO resolutions relevant to the Hong Kong framework

WHA 51.12	Health Promotion (1998)
WHA 53.17	Prevention and Control of Noncommunicable Diseases (2000)
WHA 56.1	WHO Framework Convention on Tobacco Control (2003)
WHA 57.16	Health Promotion and Healthy Lifestyles (2004)
WHA 57.17	Global Strategy on Diet, Physical Activity and Health (2004)
WHA 58.16	Strengthening Active and Healthy Ageing (2005)
WHA 58.22	Cancer Prevention and Control (2005)
WHA 60.23	Prevention and Control of Noncommunicable Diseases: Implementation of the Global Strategy (2007)
WHA 60.24	Health Promotion in a Globalized World (2007)

(Source: World Health Assembly, WHO)

3.7 The Global Strategy for Prevention and Control of Chronic NCD⁵ endorsed by the 53rd World Health Assembly in 2000 provides important guidance for the development of the local framework (Exhibit 21). While the Strategy places a major emphasis on health promotion and disease prevention, it also recognises the opportunities for health gain in the development of a more systematic approach to NCD control in the context of hospital care and healthcare reform.

3. Global Perspective on Non-communicable Disease Prevention and Control

- 3.8 The Bangkok Charter for Health Promotion⁶ adopted in 2005 in the 6th Global Conference on Health Promotion (Exhibit 22) highlights the changing context of global health and identifies major challenges, key commitments and required actions that need to be addressed through health promotion by many actors and stakeholders. These are of great relevance to Hong Kong.

Exhibit 21: Global Strategy for the Prevention and Control of NCD

Generating an information base for action

- Assess and monitor mortality attributable to NCD, and the level of exposure to risk factors and their determinants in the population
- Devise a mechanism for surveillance information to contribute to policy-making, advocacy and evaluation of healthcare

Establishing a national programme for promotion of health and NCD prevention

- Form a national coalition of all stakeholders
- Establish pilot prevention programmes based on an integrated risk factor approach that may be extended territory-wide
- Build capacity at the national and community level for the development, implementation and evaluation of integrated NCD programmes
- Promote research on issues related to prevention and management

Tackling issues outside the health sector which influence NCD control

- Assess the impact of social and economic development on the burden of the major NCD with a view to conducting a comprehensive, multidisciplinary analysis
- Develop innovative mechanisms and processes to help coordinate government activity as it affects health across the various arms of government
- Accord priority to activities that place prevention high on the public agenda, and mobilise support for the necessary societal action

Ensuring health sector reforms responsive to NCD challenge

- Develop cost-effective healthcare packages and evidence-based guidelines for the effective management of priority NCD
- Transform the role of healthcare management by vesting managers with responsibility not for institutions (e.g. hospitals) but for the effective management of resources to promote and maintain the health of a defined population

(Source: WHO, 2000)

Exhibit 22: Bangkok Charter for Health Promotion

Major challenges

As highlighted in the Charter, widening disparities within and between countries, new patterns of consumption and communication, commercialisation, rapid urbanisation and degradation of environment are the critical factors that now influence health and need to be tackled. Further challenges also include: rapid and often adverse social, economic and demographic changes that affect working conditions, learning environment, family patterns, and the culture and social fabric of communities.

Key commitments

In achieving health for all, the Charter gives new direction to health promotion by calling for policy coherence across all levels of governments, United Nations bodies, and other organisations, including the private sector. This coherence will strengthen compliance, transparency and accountability with international agreements and treaties that affect health. The four key commitments are to make the promotion of health:

- central to the global development agenda;
- a core responsibility for all of government;
- a key focus of communities and civil society; and
- a requirement for good corporate practice.

Required actions

Progress towards a healthier world necessitates sustained advocacy, strong political action and broad participation. As recommended by the Bangkok Charter, all sectors and settings must act to:

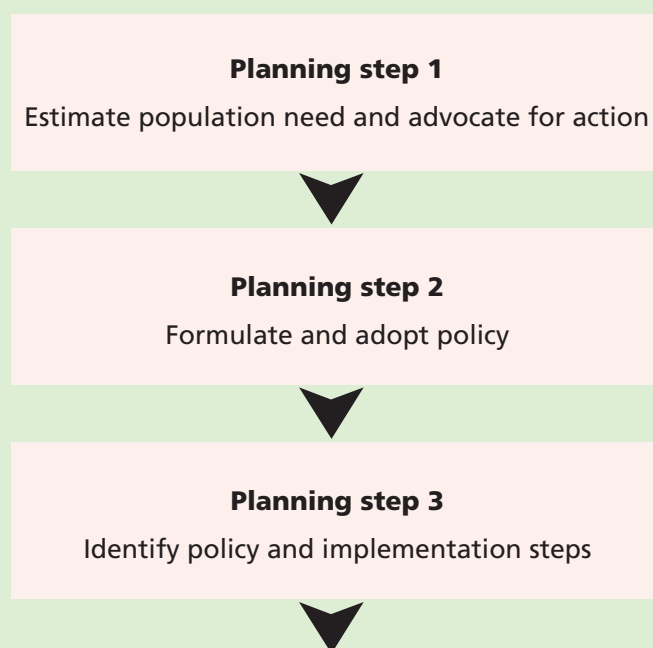
- advocate for health based on human rights and solidarity;
- invest in sustainable policies, actions and infrastructure to address the determinants of health;
- build capacity for policy development, leadership, health promotion practice, knowledge transfer and research, and health literacy;
- regulate and legislate to ensure a high level of protection from harm and enable equal opportunity for health and well-being for all people; and
- partner and build alliance with public, private, non-government and international organisations and civil society to create sustainable actions.

(Source: WHO, 2005)

3. Global Perspective on Non-communicable Disease Prevention and Control

3.9 Every country, regardless of the level of its human and financial resources, has the potential to make substantial improvements in NCD prevention and control. To offer a flexible and practical approach to assist ministries of health in balancing diverse needs and priorities, formulating strategies and implementing evidence-based interventions in NCD prevention and control, the WHO has provided a stepwise framework which includes three main planning steps and three implementation steps (Exhibit 23).¹ A number of countries have made reference to such stepwise framework in policy formulation and programme implementation for NCD prevention and control.⁴

Exhibit 23: The WHO stepwise framework for preventing chronic diseases



Policy Implementation steps	Population-wide interventions		Interventions for individuals
	National level	Sub-national level	
Implementation step 1 Core	Interventions that are feasible to implement with existing resources in the short term		
Implementation step 2 Expanded	Interventions that are possible to implement with a realistically projected increase in, or reallocation of, resources in the medium term		
Implementation step 3 Desirable	Evidence-based interventions which are beyond the reach of existing resources		

(Source: WHO, 2005)

3.10 The work undertaken in the following countries reinforces the importance of a focus on NCD prevention.

Canada⁷

3.11 Since 2002, Canada has developed an Integrated Pan-Canadian Healthy Living Strategy. The Strategy, which provides a conceptual framework for sustained action based on healthy living, was approved by the Federal, Provincial and Territorial Ministers of Health at their annual conference in 2005. The goals of the Strategy are to improve overall health outcomes and to reduce health disparities. Grounded in a population health approach, the initial emphasis is on healthy eating, physical activity, and their relationship to healthy weight. The Strategy also includes Pan-Canadian healthy living targets. To be successful, the Strategy recognises that coordinated effort is required.

3.12 Guided by the principles of integration, partnership and shared responsibility, and best practices, the Strategy is orientated around four strategic directions. They are:

- leadership and policy development;
- knowledge development and transfer;
- community development and infrastructure; and
- public information.

3.13 The intersectoral nature of the Healthy Living Strategy also provides a national context and reference point for all sectors, governments and other organisations to measure success of their own strategies and interventions.

United Kingdom^{8,9}

3.14 Although not specifically identified as a NCD strategy, the British Government's White Paper *Saving Lives: Our Healthier Nation* (1999) provides a framework for tackling a similar set of conditions, including ischaemic heart disease and stroke, cancer and accidents. One of the major goals of the White Paper is "to improve the health of the worst off in society and to narrow the health gap". Following its publication in 1999, the National Health Service (NHS) has implemented a series of National Service Frameworks, all of which worked through from prevention through treatment to rehabilitation and care for a series of diseases including diabetes mellitus and ischaemic heart disease. There are also National Service Frameworks for elderly and for children.

3. Global Perspective on Non-communicable Disease Prevention and Control

- 3.15 In 2004, another Government's White Paper *Choosing Health: Making Healthier Choices Easier* was published and set out how the Government could make it easier for people to make healthier choices by offering them practical help to adopt healthier lifestyle. It is underpinned by the three key principles of informed choice for all, personalisation of support to make healthy choices and working in partnership to make health everyone's business. The White Paper also highlighted action over six key priorities for delivery based upon more people making healthy choices:
- tackling health disparities;
 - reducing the number of people who smoke;
 - tackling obesity;
 - improving sexual health;
 - improving mental health and well-being; and
 - reducing harm and encouraging sensible drinking.
- 3.16 The British Government was determined to make a difference to people's lives and turn its commitments into sustained action. To make it happen, the White Paper introduced the key elements of how the strategy would be delivered. Briefly, the Government is committed to:
- building health into future legislation by including health as a component in regulatory impact assessment;
 - re-focusing mainstream programmes and providing new funding for specific priorities;
 - joining up action with local governments and others and the process would be coordinated and overseen by the Cabinet Sub-committee;
 - publishing a delivery plan making clear the accountability for the commitments they had made and the actions that needed to be taken;
 - building partnerships and engaging local government, the NHS, consumers and voluntary organisations and the private sectors for delivery; and
 - having a clear system of delivery to ensure action locally.
- 3.17 It was emphasised that making things happen needs central coordination and direction; working across government, local engagement and partnership with a wide group of stakeholders; using the public health system; building on what is already going on; making health a mainstream commitment; being clear about deliverables and time scales; and engaging the public and the media. In addition to the strategy paper, further centralised guidance on performance managing the NHS to deliver progress in the priority areas has been issued and public health targets are included in routine monitoring at a national level.

Sweden¹⁰

3.18 In 2003, the Swedish Parliament passed the Government's Public Health Objectives Bill and launched a National Public Health Policy. The overall aim of Swedish public health policy is to create social conditions which ensure good health for the whole population in order to achieve the following objectives:

- Participation and influence in society
- Economic and social security
- Secure and favourable conditions during childhood and adolescence
- Healthier working life
- Healthy and safe environment and products
- Health and medical care that more actively promotes good health
- Effective protection against communicable diseases
- Safe sexuality and good reproductive health
- Increased physical activity
- Good eating habits and safe food
- Reduced use of tobacco, alcohol and illicit drugs and a reduction in the harmful effects of excessive gambling

3.19 While the first six objectives relate to structural factors (i.e. environment) that can be changed by public efforts and policies, the last five objectives concern lifestyles which require individual commitment to improve or maintain one's own health. Measures to improve public health are planned in the areas of social policy, gender equality policy, child policy, elderly policy, healthcare policy, disability policy, education policy, labour market policy, environment policy and culture policy. In all, the public health bill specified 31 policy areas in which measures are to be implemented.

Australia^{11, 12}

- 3.20 Over the last decade, strategies have been initiated in Australia to address the rising prevalence of chronic diseases. In 2001, the National Public Health Partnership Group and National Strategies Coordination Working Group, in conjunction with the National Health Priority Action Council and with the support of the Australian Health Ministers' Advisory Council, put forward a strategic framework for preventing chronic diseases. The framework is intended to provide the basis for a comprehensive, evidence-based, public health response to the priority diseases and health issues. To help organise the national population health effort more effectively and efficiently, the framework focuses on a number of preventable conditions which share commonalities in their aetiology and the major modifiable risk factors, and determinants of these conditions. Based on a list of selection criteria, the primary conditions targeted are heart diseases, stroke, type 2 diabetes mellitus, hypertension, abnormal blood lipid profiles and obesity. Other conditions proposed under the framework include renal disease, certain cancers and chronic lung disease, whereas the primary behavioural risk factors targeted include smoking, unhealthy diet, physical inactivity and alcohol misuse.
- 3.21 For the chronic disease prevention strategy, the goals are to:
- improve the health of all Australians by reducing the health, social and economic impacts of chronic diseases;
 - reduce health disparities among different segments of the population;
 - establish a national system of health promotion and chronic disease prevention strategies that meet the needs of the population at each stage of the life course;
 - incorporate chronic disease prevention objectives into policies; and
 - create and sustain the partnerships, systems and leadership needed to achieve these goals.

3.22 To achieve the goals, the framework underlines the importance of a life course approach to disease prevention and health promotion, and harnessing the contribution of different groups and interests in society to address the burden of chronic diseases. In line with the WHO's recommendation, the framework recommends building the organisation of the national prevention effort in Australia around three key domains of activity. These are: ensuring an effective information base; strengthening prevention and health promotion; and improving systems of care for those with chronic diseases.

*Singapore*¹³

3.23 From 2000 onwards, the Ministry of Health developed a multi-pronged disease management framework for major chronic diseases in Singapore. The aim is to reduce the burden of major diseases causing mortality and morbidity, such as CVD. It emphasises the building of a healthy population through preventive healthcare programmes and the promotion of healthy living. This approach comprises the following:

- patient and family education;
- promotion of self-management;
- changes to the clinical care process (e.g. clinical guidelines and pathways);
- interaction between the caregiver and patient using good communication and various clinical tools;
- feedback about patient outcomes; and
- supportive information technology infrastructure.

3.24 In this framework, the focus is primarily on health promotion and primary preventive activities that are targeted at both the general population and high-risk groups. At the same time, risk factors have to be detected early and treated early (secondary and tertiary prevention) for an overall comprehensive approach to disease prevention and control. To ensure successful implementation, the National Disease Plans use a comprehensive approach incorporating patient responsibility, integration of care by several providers and identification of responsible parties. National Disease Plans are being established for cancer, ischaemic heart disease, stroke, end-stage renal failure and myopia.

3.25 In sum, the work undertaken in the above countries have emphasised healthy lifestyle promotion and the role of preventive care in addressing major NCD.

4



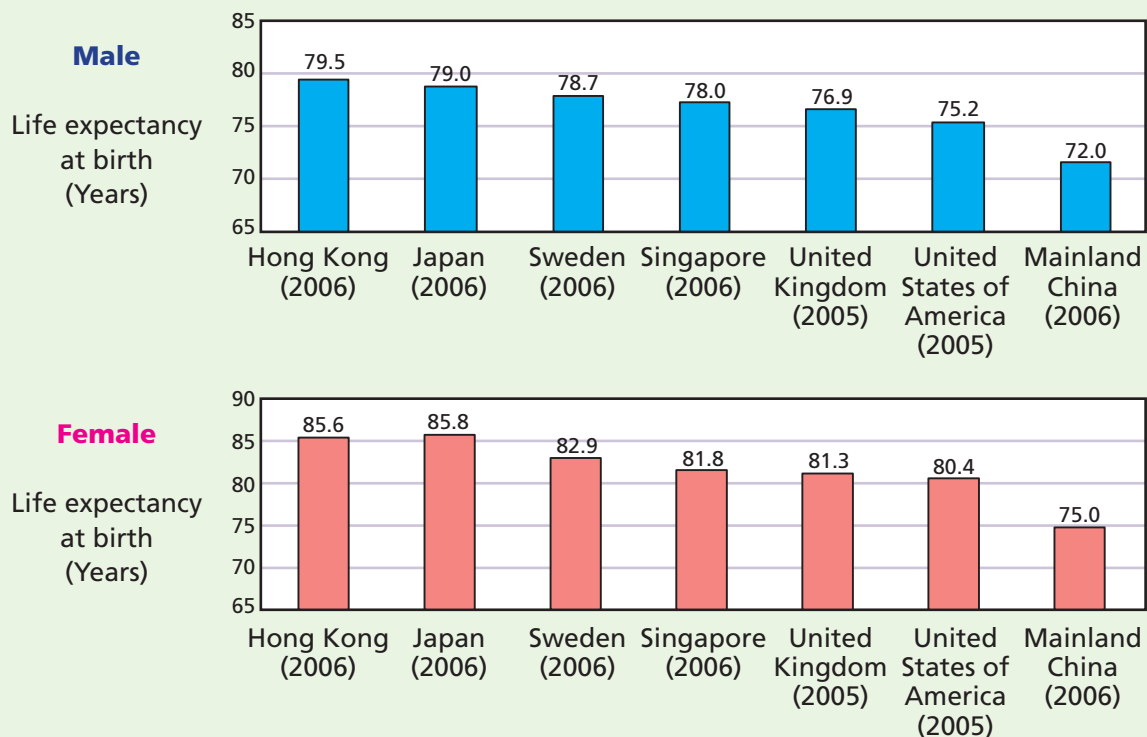
Overview of Local Situation

4



4.1 By comparing health indices of Hong Kong and other parts of the world, Hong Kong ranks among the best with high life expectancy at birth (Exhibit 24) and low rates of infant and maternal deaths.

Exhibit 24: Life expectancy at birth in Hong Kong and selected countries

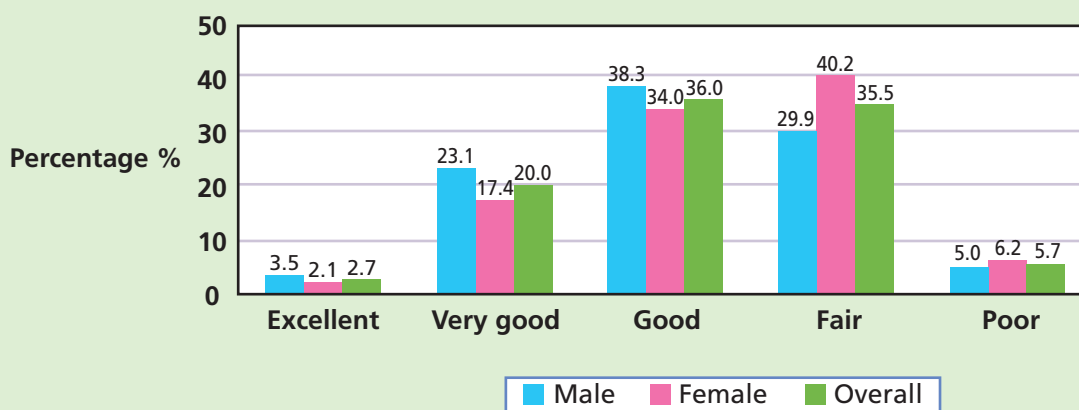


(Sources: Hong Kong – Census and Statistics Department; Japan – Statistical Handbook of Japan, <http://www.stat.go.jp/english/data/handbook/c02cont.htm> (accessed on 8 July 2008); Sweden – Website of Statistics Sweden, http://www.scb.se/templates/tableOrChart___25831.asp (accessed on 8 July 2008); Singapore – Handbook of Statistics Singapore 2007, <http://www.singstat.gov.sg/pubn/reference/yos/yos2007.pdf> (accessed on 8 July 2008); United Kingdom – Population Trends, Summer 2008, No.132, http://www.statistics.gov.uk/downloads/theme_population/Population_trends_132.pdf (accessed on 8 July 2008); United States of America – National Vital Statistics Reports. Vol 56, No.10, April 2008, http://www.cdc.gov/nchs/data/nvsr/nvsr56/nvsr56_10.pdf (accessed on 8 July 2008); Mainland China – The World Health Report 2008, WHO, <http://www.who.int/whosis/whostat/2008/en/index.html> (accessed on 8 July 2008)

General Well-being

- 4.2 In 2003/2004, the DH collaborated with the Department of Community Medicine of the University of Hong Kong to conduct the Population Health Survey (PHS), to report on the health status, health behaviours and a number of other health related issues for the general population in Hong Kong. Over 7 000 randomly selected land-based non-institutionalised people who resided in Hong Kong aged 15 and over were face-to-face interviewed.¹
- 4.3 Results showed that about 60% of respondents rated their health as good or even excellent (Exhibit 25) and about 42% considered they had a good or very good quality of life; only a low percentage rated their health as "poor". However, nearly one in five (19.5%) of the elder population aged 75 and above rated their health status as poor. This may likely be attributed to a higher prevalence of diseases that come with ageing population.

Exhibit 25: Self-rated health status by sex



Note: People aged 15 and above

The percentage may not add up to 100% due to rounding

(Source: PHS 2003/2004)

- 4.4 With ageing population and changing risk profile of the population including widening social disparities (Exhibit 26) and changing environmental determinants of health, more people can be expected to suffer from chronic diseases in the future. Public health strategies are needed to combat the challenge.

Exhibit 26: Income and health

Health is strongly associated with the socio-economic environment. It tends to get worse in areas of poverty and among certain underprivileged groups or sub-populations, which are on the margin and outside of the dominant culture. Numerous reports show that health status improves at each step up the income hierarchy. There is a consistent finding that the less equitable the income distribution in a country, the less favourable the health outcome.

Prevalent Health Risk and Behaviour

- 4.5 Research has identified certain key behavioural and biomedical risk factors that are prevalent in our population. For example, the Behavioural Risk Factor Survey conducted in April 2007 showed that 15.9% of people aged 18-64 were daily smokers, of which the proportion of men was almost four times that of women; 18.9% were classified as having "low" level of physical activity. Less than one-fifth of people met the WHO's recommendation of having at least five servings of fruit and vegetables per day. In addition, 8.9% of people (14.6% for men and 3.8% of women) self-reported that they had binge drinking (i.e. drinking five or more glasses or cans of alcoholic drink on one occasion) in the month prior to the interview (Exhibit 27).² Including the risk factor of high body mass index (BMI \geq 23), a research in 2007 revealed that aggregation of risk factors was prevalent - 37.6% had one health risk, 35.8% had two risk factors, 2.8% had a combination of four risk factors and 0.7% presented with all five risk factors.³

Exhibit 27: Prevalence of major behavioural risk factors

	Overall	Male	Female
Daily smoking	15.9%	26.2%	6.8%
Low level of physical activity (IPAQ classification)	18.9%	16.6%	20.9%
Inadequate daily fruit and vegetable intake	81.1%	86.3%	76.6%
Binge drinking (in the past one month)	8.9%	14.6%	3.8%

Note: People aged 18-64 ; IPAQ-International Physical Activity Questionnaire

(Source: Behavioural Risk Factor Survey, April 2007)

4.6 Another survey, the Heart Health Survey, revealed that over one-third of people aged 15-84 in Hong Kong had central obesity defined by waist circumference (waist circumference greater than 90cm for males and greater than 80cm for females). Analysed by age, the proportion of people with central obesity increased with age.⁴ The survey also revealed that 33.3% had cholesterol concentrations at a borderline high and above level; 3.9% had high density lipoprotein cholesterol (HDL) concentrations at risk level; 22.9% had low density lipoprotein cholesterol (LDL) concentrations at borderline high and above level; 0.4% had very low density lipoprotein cholesterol (VLDL) concentrations at risk level; and 15.9% had triglyceride concentrations at borderline high and above level. In general, males had a higher prevalence of suboptimal cholesterol, HDL, LDL, VLDL and triglyceride concentrations than females. The proportion of people with suboptimal concentrations of these blood lipids increased with age. Furthermore, 7.5% had impaired glucose tolerance (IGT) or impaired fasting glucose (IFG) based on blood test during the survey, excluding those with diabetes mellitus (Exhibit 28). It is also pertinent to note that some people may have more than one risk factor.

Exhibit 28: Prevalence of major biomedical risk factors

	Overall	Male	Female
Central obesity	35.3%	30.2%	39.5%
Suboptimal cholesterol concentrations	33.3%	36.3%	30.8%
Suboptimal HDL concentrations	3.9%	6.8%	1.5%
Suboptimal LDL concentrations	22.9%	27.6%	19.1%
Suboptimal VLDL concentrations	0.4%	0.6%	0.1%
Suboptimal triglyceride concentrations	15.9%	22.1%	10.8%
IGT/IFG	7.5%	8.7%	6.4%

Note: People aged 15-84

(Source: Heart Health Survey 2004/05)

Prevalence of Chronic Health Condition

4.7 Diseases with high mortality may not be the most prevalent health problems in the community. Overweight and obesity (38.8%) and hypertension (27.2%) were the most prevalent self-reported doctor-diagnosed or detected chronic health conditions, whereas high blood cholesterol (8.4%) and diabetes mellitus (3.8%) were the most common types of chronic health conditions that were diagnosed by a western medical practitioner (Exhibit 29).¹

Exhibit 29: Prevalence of chronic health condition

	Overall	Male	Female
Overweight and obesity (BMI≥23)	38.8%	42.5%	35.9%
Hypertension	27.2%	30.1%	24.9%
High blood cholesterol	8.4%	8.4%	8.4%
Diabetes mellitus	3.8%	3.7%	3.8%
Asthma	1.9%	1.8%	1.9%
Coronary heart disease	1.6%	2.0%	1.2%
Chronic obstructive pulmonary disease	1.4%	1.9%	0.9%
Cancer	1.3%	1.0%	1.5%
Stroke	1.1%	1.5%	0.8%

Note: People aged 15 and above

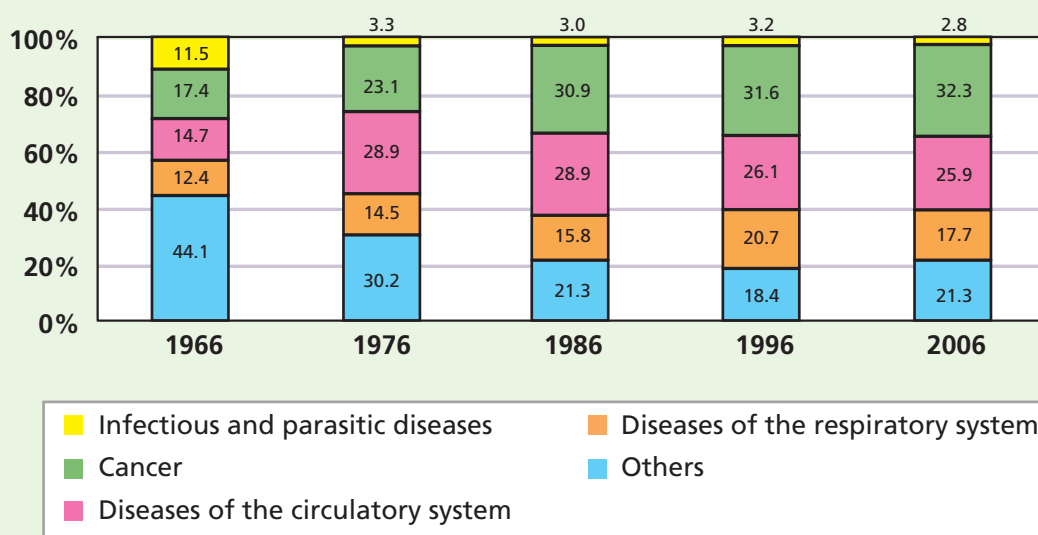
(Source: PHS 2003/2004)

- 4.8 However, the true prevalence of these conditions could be underestimated as many people might have no symptom and were not aware of having such conditions. For diabetes mellitus, a local study had reported only 28% of men and 30% of women with diabetes mellitus knew that they had this condition. This means about 70% were unaware that they had diabetes mellitus and such observation applied in all age groups.⁵
- 4.9 Injuries is another major public health issue. The PHS found that 14.3% of people aged 15 and above had sustained an injury that was serious enough to limit their activities in the 12 months preceding the survey. While a significant greater proportion of males (17.4%) than females (11.7%) reported so, people in the 15-24 age group were more likely to report having an injury that was serious enough to limit their normal activities than people in the older age groups.¹

Major Disease Killer

4.10 Hong Kong, like many other countries, has gone through its epidemiological transition in mortality from communicable diseases to NCD. While the proportion of deaths due to infectious and parasitic diseases dropped from about 12% in 1966 to less than 3% in 2006, deaths attributed to NCD such as cancer, and diseases of the circulatory system (including diseases of heart and stroke) nearly doubled during the same period (Exhibit 30).

Exhibit 30: Proportionate death (as percentage of total registered deaths) of selected disease groups in years 1966, 1976, 1986, 1996 and 2006

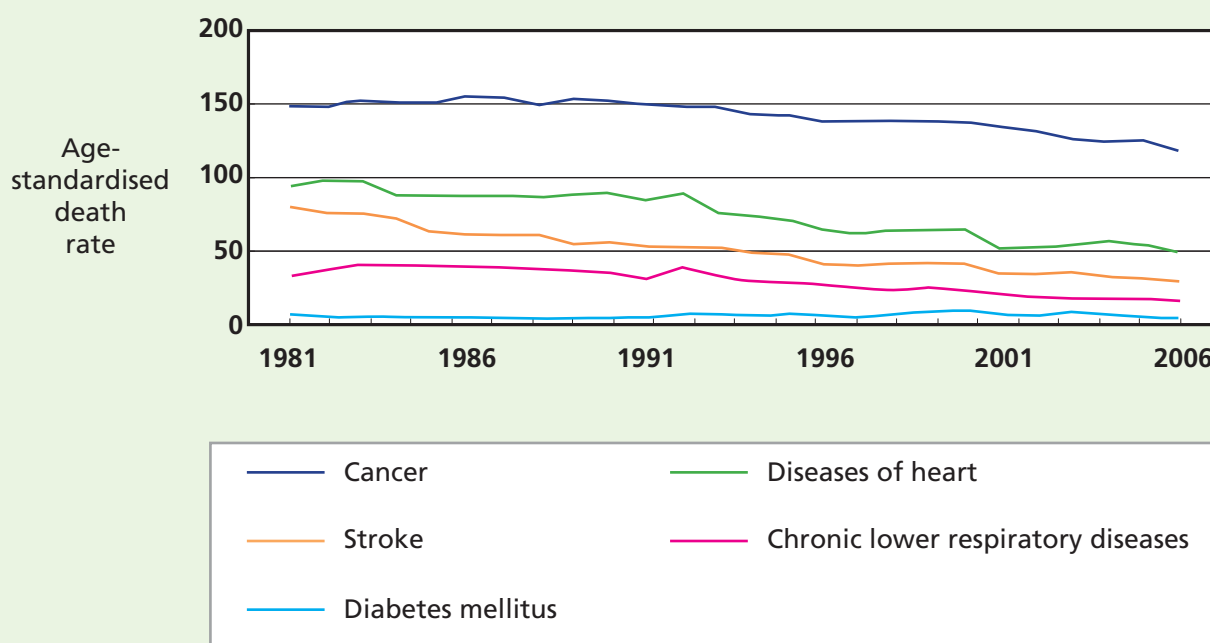


Note: The percentage may not add up to 100% due to rounding.

(Sources: Census and Statistics Department; DH)

4.11 The last two decades have also shown decreasing age-standardised death rates from the common killers including heart diseases, stroke and most cancers (Exhibit 31).

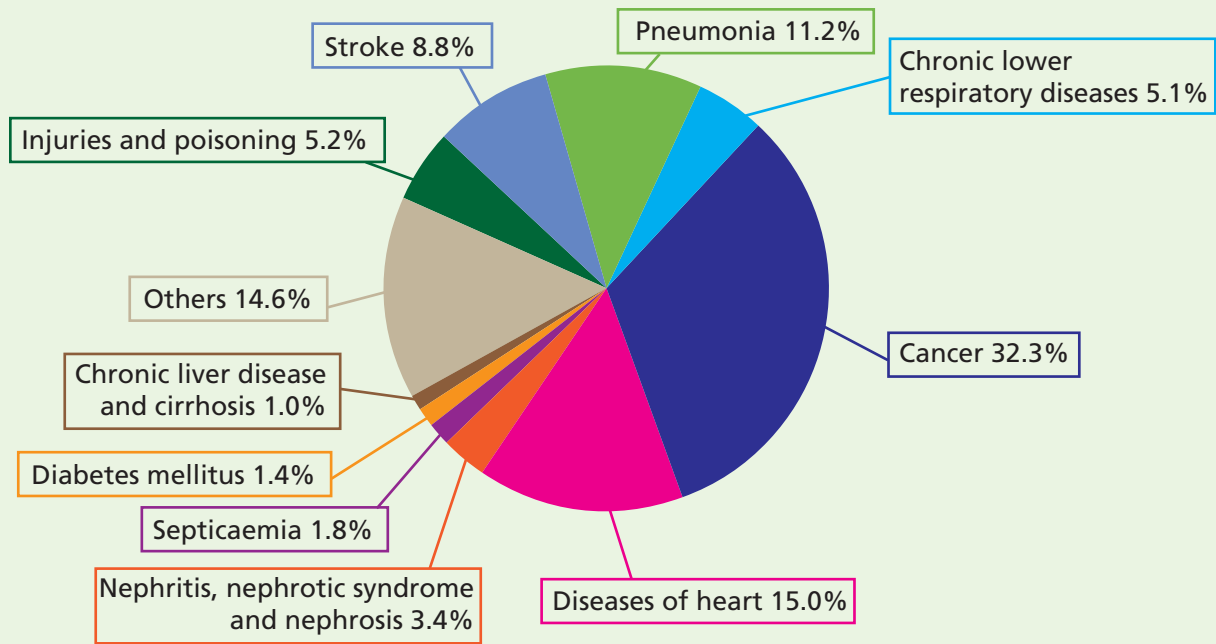
Exhibit 31: Age-standardised death rates (per 100 000 standard population) by selected diseases, 1981-2006



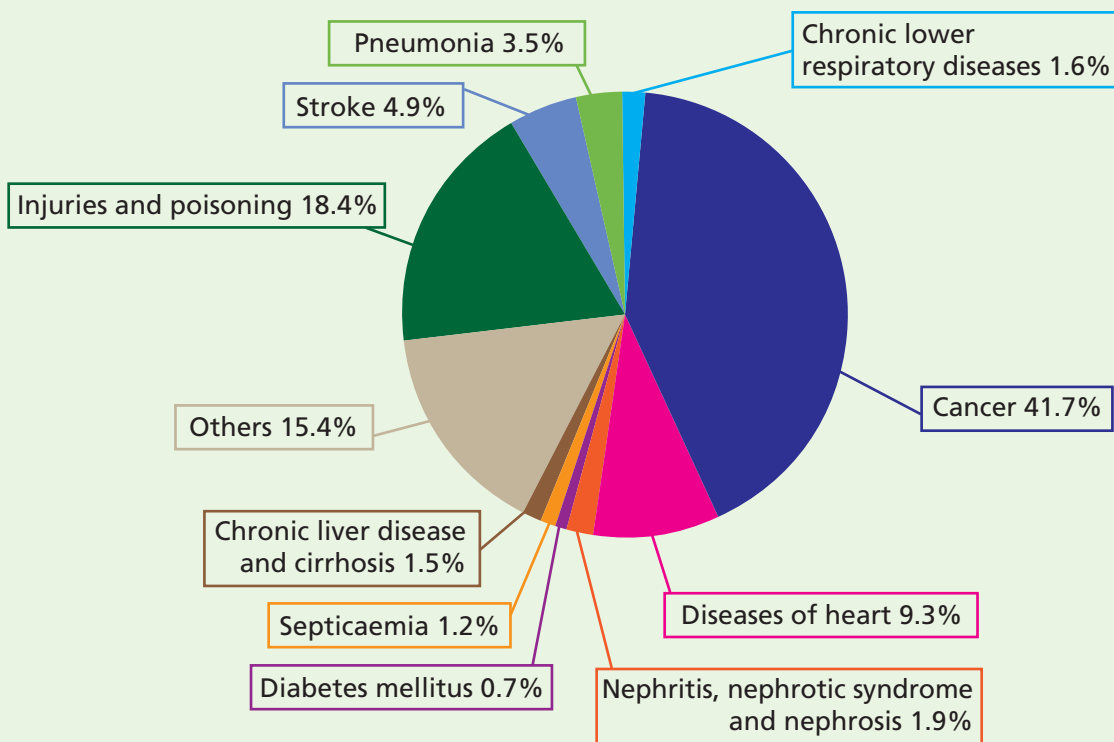
(Sources: Census and Statistics Department; DH)

4.12 Among 37 415 registered deaths in 2006, approximately 61% of them were attributed to four major but preventable NCD, including cancer (32.3%), diseases of heart (15.0%), stroke (8.8%) and chronic lower respiratory diseases (5.1%). In terms of PYLL at age 75 which provides a good estimate of the overall level of premature death in the population, cancer accounted for more than two-fifths of the total PYLL, whereas injuries and poisoning were responsible for about one-fifth of the total loss in 2006 (Exhibit 32).

Exhibit 32: Ten leading causes of death, 2006



Proportion of all registered deaths



Proportion of all PYLL at age 75

(Sources: Census and Statistics Department; DH)

Use of Hospital and Clinic Service

- 4.13 NCD have become the major causes of hospital admission in Hong Kong. Whereas at the beginning of the last century the major health problems were infectious diseases, the major challenge now is NCD.
- 4.14 In the past 20 years, a substantial proportion of in-patient discharges and deaths in all hospitals was due to cancer, stroke, diseases of heart, kidney diseases, chronic lower respiratory diseases, and injuries and poisoning, while infectious and parasitic diseases accounted for about 3% (Exhibit 33).

Exhibit 33: Number of episodes (%) of in-patient discharges and deaths by selected diseases in all hospitals in 1986 and 2006

	No. of episodes (%)	
	1986	2006
Infectious and parasitic diseases	23 948 (3.1%)	43 037 (3.0%)
Injuries and poisoning	88 341 (11.3%)	71 705 (5.0%)
Cancer	48 465 (6.2%)	97 172 (6.7%)
Diseases of heart	30 281 (3.9%)	61 887 (4.3%)
Chronic lower respiratory diseases	28 881 (3.7%)	39 371 (2.7%)
Nephritis, nephrotic syndrome and nephrosis	31 345 (4.0%)	84 672 (5.9%)
Stroke	14 847 (1.9%)	25 991 (1.8%)
Others	512 314 (65.8%)	1 017 329 (70.6%)
Total	778 422 (100.0%)	1 441 164 (100.0%)

Note: The percentage may not add up to 100% due to rounding.

(Sources: DH; Hospital Authority)

4. Overview of Local Situation

- 4.15 Likewise, the most commonly cited diseases that required long-term follow-up by doctors were NCD, including disease of the circulatory system (47.9%), endocrine and metabolic disease (22.4%) and musculoskeletal disease (13.5%) (Exhibit 34).⁶

Exhibit 34: Persons who had diseases that required long-term follow-up by doctors by type of disease, 2005

	No. of persons ('000)	Proportion*
Disease of the heart or circulatory system	644.1	47.9%
Endocrine and metabolic disease	300.8	22.4%
Musculoskeletal disease	181.2	13.5%
Lung disease	110.9	8.3%
Disease of the eye	107.5	8.0%
Disease of the ear/nose/throat	92.8	6.9%
Mental disorder	90.3	6.7%
Cancer	40.6	3.0%
Stomach and intestinal disease	36.0	2.7%
Skin disease	35.0	2.6%

Note: Multiple answers were allowed.

* As a percentage of all persons who had diseases that required long-term follow-up by doctors

(Source: Thematic Household Survey Report No.30, Census and Statistics Department)

- 4.16 Of note, mortality is not a very sensitive marker for the burden of some diseases while in-patient statistics may distort the picture. Some conditions that cause substantial suffering through disability but do not result in death or hospitalisation may have been overlooked. To quantify the amount of full health lost due to disease or injury occurring in a particular period or to assess the complete spectrum of disease that occurs in a population, DALY can be used.
- 4.17 Although there have been some reservation on the study methodology (such as it is an expensive exercise, it requires a lot of data and the methodology is complex), a number of countries or regions, including Australia, Netherlands, New Zealand and Thailand, have utilised or adapted the WHO methodology to conduct their own burden of disease studies.
- 4.18 At present, however, data gaps impede an accurate assessment of the disease burden in Hong Kong. While Hong Kong has a good death registration system, data required for estimating the morbidity burden are not readily available, including disease incidence, severity and average duration of disability of many non-fatal diseases. There is a need for more accurate monitoring and surveillance systems that are able to generate real estimates of the burden of disease in our society. In some other countries, this issue is addressed by establishing "observatories" (Exhibit 35).

Exhibit 35: Public Health Observatories (PHOs)

A national network of public health observatories was created in England in 1999 following the publication of *Saving Lives: Our Healthier Nation*.⁷

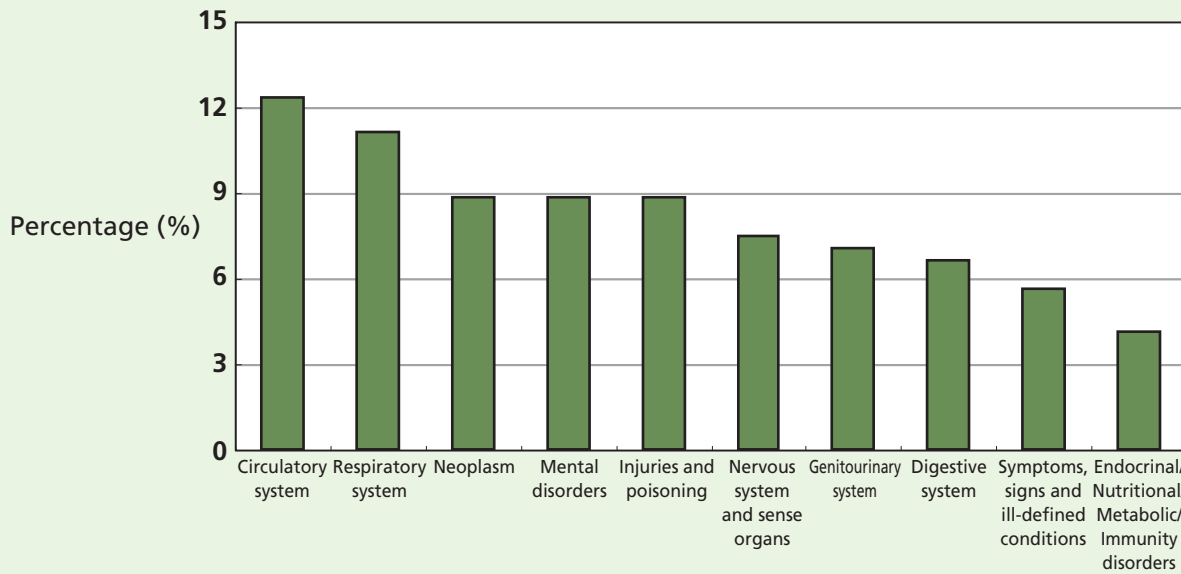
The PHOs work in partnership with practitioners, researchers, regional and local health policymakers and the voluntary sector by:

- monitoring health and disease trends and highlighting areas for action;
- identifying gaps in health information;
- advising on methods for health and health disparity impact assessments;
- drawing together information from different sources in new ways to improve health;
- carrying out projects to highlight particular health issues;
- evaluating progress by local agencies in improving health and reducing disparity; and
- looking ahead to give early warning of future public health problems.

Health Expenditure

- 4.19 Once a patient has been diagnosed with NCD, they may face lifelong treatment which can be very costly both to themselves, their families and the healthcare system. Quantifying the financial cost of any particular disease to the community has never been easy because cost data for individual disease are unavailable or incomplete.
- 4.20 Expenditure figures of the Hospital Authority (HA) showed that diseases of the circulatory system, diseases of the respiratory system, neoplasm, mental disorders, and injuries and poisoning accounted for the greatest expenditure of HA in 2004/2005. Altogether, these five diseases accounted for nearly 50% of the total allocated health expenditure in that financial year (Exhibit 36).

Exhibit 36: Proportion of expenditure of HA by disease chapters, 2004/2005



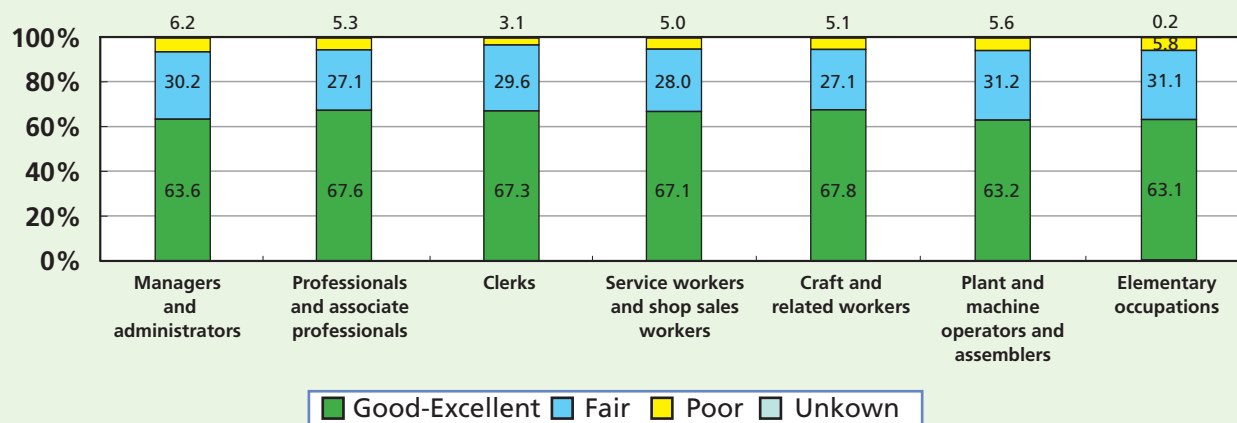
(Source: HA)

- 4.21 In view of the economic, social and personal costs associated with NCD, including injuries and poisoning, NCD prevention and control will be a sound investment in reducing expensive treatment costs, needless suffering and early deaths.
- 4.22 The current healthcare system, however, has put limited emphasis on effective preventive practice. In 1996 and 2001, the Government and private sector spent about 2.3% and 2.5% respectively of the entire health expenditure on disease prevention and health promotion. Resources need to be mobilised and put towards informing the public, empowering the communities and civil society groups or organisations, engaging the whole healthcare system and integrating efforts towards primary, secondary and tertiary prevention.

Health Disparity

- 4.23 In Hong Kong, health differences among different subgroups are evident. For example, men in Hong Kong have a shorter life expectancy at birth than women (79.4 years for males versus 85.5 years for females in 2006). There is also an explicit gender gap in many preventable illnesses.^{1,8} NCD are most prevalent in older and disadvantaged sectors of the population. Prevalence of chronic diseases in people aged 65 and above is about five times higher than that of individuals aged 20.⁹
- 4.24 Higher levels of education is associated with having a healthier diet and a lower prevalence of overweight.¹⁰ While non-skilled workers have comparably higher prevalence of cancer and diabetes mellitus, mechanical and machine operators have higher percentages of people having hypertension and stroke. Asthma is found more prevalent among associate professionals, managers and administrators as well as clerks.¹
- 4.25 Data collected in the 2005 Thematic Household Survey on people aged 15 and above in Hong Kong showed clear differences in self-perceived general health between occupational groups. A higher proportion of managers and administrators reported "poor" health than other occupation groups (Exhibit 37).⁶

Exhibit 37: Self-perceived general health condition by occupation, 2005



Note: Employed persons aged 15 and above

The percentage may not add up to 100% due to rounding

(Source: Thematic Household Survey Report No.30, Census and Statistics Department)

4.26 As health disparities take many different forms and arise from a variety of causes, there is no single solution for rectifying social disparities or narrowing the gaps between population subgroups. Various reports and analyses of health disparity consistently argue that it can be reduced through responsive public policies and collaborative public health actions. These may include building human capital through quality education systems, combating poverty by means of effective welfare programmes and increasing employment opportunities.^{11, 12}

Initiatives in Health Promotion and Disease Prevention

4.27 In Hong Kong, both the public and private sectors conduct health promotion programmes and provide disease preventive services.

4.28 Since 2000, the DH has strengthened health promotive and disease preventive activities in various services (Exhibit 38). On top of that, the Tobacco Control Office has been established to enhance and co-ordinate efforts on tobacco control, and the Men's Health Programme and the CSP have been launched to promote health of men and regular use of cervical smears to prevent cervical cancer in women respectively.

4.29 The HA has also played an active role in health promotion and disease prevention. For example, the Health InfoWorld organises exhibits, workshops and health promotion activities relating to major disease burdens in collaboration with community partners, various professionals, corporations, patient groups and volunteers. Its Patient/Health Resources Centres, based in hospitals, serve as a platform for engaging discharged patients and their carers in health education and self-management programs with the aim of enhancing patient mutual support as well as secondary prevention in relevant disease groups. The General and Specialist Out-patient Clinics also provide health talks to patients and the population at large.

Exhibit 38: Health promotion and disease prevention in the DH

Health Promotion (Central Health Education Unit and Oral Health Education Unit)

- Promotes the health of the community through collaborating with various agencies in health promotion, researching and evaluating the effectiveness of promotion programmes, disseminating information on good promotive practices, providing training to people engaged in health promotion activities and mobilising the community to involve in all aspects of health promotion through various channels of mass media and promotion campaigns.

Family Health Service (Maternal & Child Health Centres and Woman Health Centres)

- Child health: provides a comprehensive range of health promotion and disease prevention services for young children 0 to 5 years, including parenting programme, immunisation programme, and health and developmental surveillance programme.
- Maternal health and Family Planning: provides antenatal and postnatal care, cervical screening and family planning services for women.
- Woman health: provides health education, counselling and screening services to women aged 64 and below.

Health Service for Students (Student Health Service Centres, Special Assessment Centres, outreaching teams for adolescent health and School Dental Clinics)

- Provides all primary and secondary school students with health assessment, health education and individual health counselling services.
- Promotes psychosocial health of adolescents in secondary schools through an outreaching Adolescent Health Programme.
- Helps primary school children develop good self-care behaviour in dental health. Services offered by the School Dental Clinics include dental health assessment and check-ups; oral healthcare counselling and oral hygiene instructions; and preventive, basic curative and emergency treatment.
- Provide free vaccination through school immunisation teams.

Elderly Health Service (Elderly Health Care Centres and Visiting Health Teams)

- Provides integrated health services, including health assessment, physical check-ups, counselling, curative treatment and health education to elderly people aged 65 and above.
- Reaches into the community and residential settings to improve the self-care abilities of the elderly.
- Provides training to persons responsible for caring for the elderly in the community and residential settings.

Specialist Outpatient Service (Tuberculosis & Chest Clinics and Social Hygiene Clinics)

- Provides health education to the population at large and free curative care for patients suffering from tuberculosis, other respiratory diseases and sexually transmitted diseases.

4.30 A report showed that about 70% of the out-patient consultations are provided by the private sector.¹³ Another survey revealed that more than one-tenth of Hong Kong population aged 15 and above had received treatment from Chinese medicine practitioners in the 30 days before enumeration.¹ Therefore, their role in health promotion and disease prevention cannot be underscored.

4.31 NGOs, act as advocates for health, are an important partner in health promotion and disease prevention. For example, the Hong Kong Council on Smoking & Health coordinates measures against tobacco use, informs the public on the harm of smoking and its adverse health effects as well as conducts research into the cause, prevention and cure of dependence. The Hong Kong Cancer Fund is dedicated to the prevention of cancer through proper diets and healthy lifestyles. The Family Planning Association of Hong Kong runs health promotion campaigns and provides various counselling and clinical services to adolescents and adults. The Hong Kong Childhood Injury Prevention and Research Association conducts evaluation research as to inform and bring about good clinical practices.

5



Strategic Framework



- 5.1 For efficient and cost-effective tackling of the NCD epidemic, a strategic framework will be required, both to promote the well-being of the population and also inculcate healthy behaviours. In this connection, DH held an expert group meeting entitled "Establishing a Strategic Framework on Prevention and Control of Non-communicable Diseases" on 3 September 2005. Over 40 participants from academic, business, education, healthcare and social sectors, other government departments and NGOs attended the meeting to map out a strategic framework on prevention and control of NCD in Hong Kong (Exhibit 39).

Exhibit 39: Sharing views and knowledge



"...we have not neglected the significance of NCD or chronic diseases that have placed an enormous health and economic burden on the population... what we need now is an organised approach for tackling NCD", Dr PY Lam, Director of Health remarked.

Principle

- 5.2 Based on WHO's Global Strategy for Prevention and Control of NCD, the principles for establishing the strategy are —
- shared responsibility across the Government, professional groups, non-government agencies, business sector and the community;
 - diversity in approach, targeting the whole population, specific population subgroups and individuals most at risk;
 - concentrating on promotion, prevention and early intervention; and
 - evidence-based, outcome-focused and addressing health determinants.

Scope

- 5.3 In Hong Kong, a limited number of NCD account for a significant proportion of disease burden on the community and healthcare system. At the same time, several risk factors work together to predispose and give rise to these diseases. Accumulated knowledge and experience in health promotion and disease prevention shows that strategically focused interventions on a "cluster" of modifiable behavioural risk factors and environmental determinants can induce parallel changes in those biomedical risk factors, thereby reduce the risk of developing NCD. To optimise health gains, this strategic framework will focus on the major risk factors that are potentially preventable or modifiable and have significant impact on the health of the Hong Kong population (Exhibit 40 and 41).

Exhibit 40: Scope of the NCD prevention and control framework

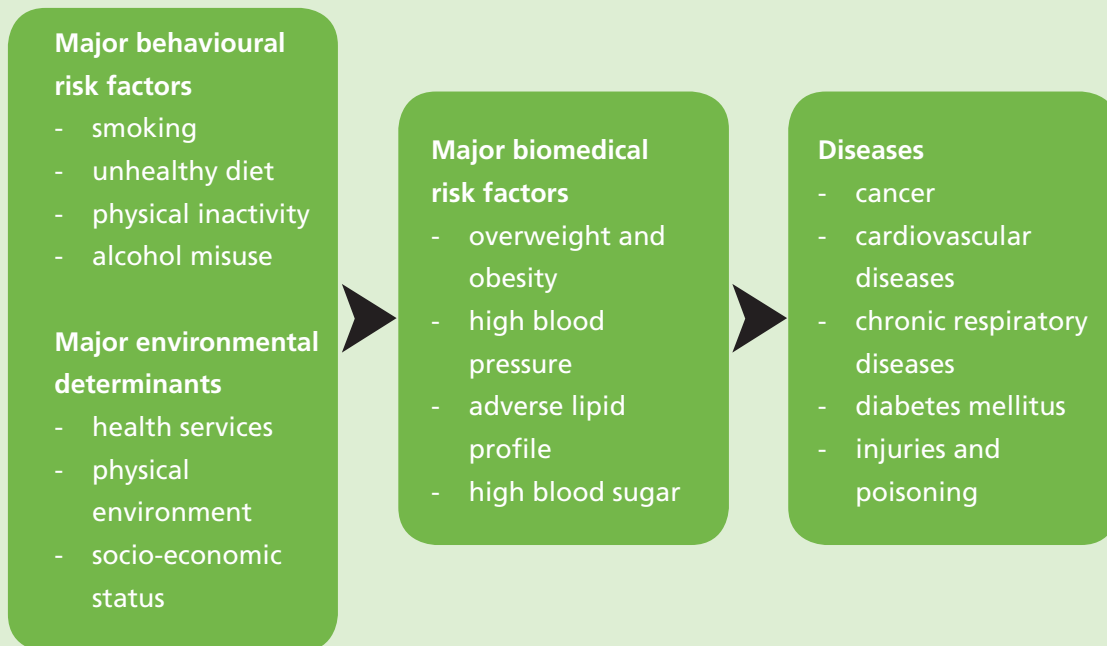


Exhibit 41: Facts on selected risk factors and NCD

Air Pollution and Respiratory Diseases

Ambient air pollutants include a wide range of particulates and gases. Air pollution in Hong Kong is mainly caused by emissions from local motor vehicles/power plants and from industries/power plants in the vicinity. The impact of air pollution on respiratory system has been widely recognised. Studies have reported that significant associations were found between hospital admissions for chronic respiratory diseases and the concentration level of respirable suspended particulates, nitrogen dioxide, sulphur dioxide and ozone.¹ Another epidemiological study found a reduction of chronic bronchitis symptoms and bronchial hyper-responsiveness in young children after the enforcement of regulations for controlling the concentration level of sulphur dioxide in ambient air.²

Alcohol and Injuries

Alcohol misuse not only contributes to adverse health effects, but also to intentional injuries (e.g. suicide), unintentional injuries (e.g. road traffic accidents, falls) and social problems. Alcohol misuse is involved in a quarter of intentional injury death cases annually. For all unintentional injury deaths, 40-60% of all injury deaths are attributed to alcohol consumption.³ A local epidemiological study on all motor vehicle deaths in 1999 found that one in ten (10.3%) accidents had involved alcohol.⁴

Diet and CVD

The WHO recommends intake of a minimum of 400 gram of fruit and vegetables per day for the prevention of NCD, including heart diseases and stroke. Low fruit and vegetables intake, a common dietary pattern in developed areas, is now among the top ten risk factors contributing to global mortality. Worldwide, low intake of fruit and vegetables is estimated to cause about 31% of ischaemic heart disease and 11% of stroke.⁵

Physical Activity and Diabetes Mellitus

To maintain health, the WHO recommends people to engage in not less than 30 minutes of physical activity of moderate intensity every day, or at least on most days of the week.⁶ There is strong epidemiological evidence for the protective effect of physical activity against developing type 2 diabetes mellitus.⁷

Smoking and Cancer

Lighting up cigarettes will release many chemicals such as tar, nicotine, carbon monoxide etc, which cause harm to the entire respiratory system. Compared to non-smokers, men who smoke are about 23 times more likely to develop lung cancer and women who smoke are about 13 times more likely so. Smoking causes about 90% of lung cancer deaths in men and almost 80% in women. Smoking is also associated with cancers of the oral cavity, larynx, pharynx, esophagus and bladder. For smoking-attributable cancers, the risk generally increases with the number of cigarettes smoked and the number of years of smoking, and generally decreases after quitting completely.⁸

Vision

- 5.4 Having a clear vision is essential to any strategy as it provides focus and also serves to remind people of the long-term purposes of their work. With successful implementation of the strategic framework, it is envisioned that Hong Kong will have a **well-informed population** that is able to take responsibility for their own health, a **caring community** that integrates public and private sectors to ensure healthy choices for the public, a **competent healthcare profession** that views health promotion and preventive medicine as priorities, and a **sustainable healthcare system** that incorporates strong elements of health promotion, disease prevention and curative care for our people, thereby **significantly reducing the toll of disease burden including disability and premature death related to NCD**.

Goal

- 5.5 For the above vision to be realised, the goals of this NCD strategic framework would be to —
- create an environment conducive to promoting health;
 - engage the population in promoting their own health as well as the health of their families and communities;
 - prevent and/or delay the onset of NCD for individuals and population groups;
 - reduce the progression and complications of NCD;
 - reduce avoidable hospital admissions and healthcare procedures; and
 - provide high quality care for NCD in healthcare settings in order to maintain health and halt disease progression.

Strategic Direction

5.6 To achieve the set goals, six strategic directions have been identified for focusing the attention, resources and actions at areas in where investments in NCD prevention and control can bring the greatest return in terms of health outcomes.

Direction 1: Support new and strengthen existing health promotion and NCD prevention initiatives or activities that are in line with this strategy

Key actions will include —

- fostering implementation of territory-wide health promotion programmes such as "healthy eating", "active living" and "tackling overweight";
- mobilising resources and providing support for key NGOs in health promotion and NCD prevention; and
- supporting setting-based integrated approaches to health promotion and disease prevention, e.g. health promoting schools, smoke-free public places, healthy workplaces and healthy cities.

Direction 2: Generate an effective information base and system to guide action across the disease pathway

Key actions will include —

- building on existing knowledge management systems to ensure that evidence and information will be readily available to promote best practices among the healthcare providers;
- developing a systematic health information dissemination strategy to further empower individuals with health knowledge;
- improving surveillance of NCD and track changes in the risk profile and health determinants of the population; and
- supporting sound research on issues relating to health promotion and NCD prevention policies.

Direction 3: Strengthen partnership and foster engagement of all relevant stakeholders

Key actions will include —

- fostering public-private partnerships, engaging the civil society and networking all stakeholders to identify opportunities for collaboration;

- involving and engaging all levels of the Government, local communities and the public to create an environment conducive to the promotion of healthy behaviours;
- forming specific working groups to advise on priority actions required in specific areas of prevention, and also to provide strategic governance; and
- adopting setting approach to schools, workplaces, hospitals etc. and also to promote healthy cities.

Direction 4: Build the capacity and capability to combat NCD

Key actions will include —

- ensuring all healthcare workers will receive training on the principles of NCD prevention, with capacity to prevent, detect and treat them;
- using research and evaluation to drive evidence-based practice; and
- developing health literacy in the general public with appropriate information and tools.

Direction 5: Ensure a health sector that is responsive to the NCD challenges and to improve the system of care

Key actions will include —

- strengthening the role of health promotion and disease prevention in the healthcare system;
- developing, implementing and monitoring evidence-based guidelines for effective management of major NCD, as well as monitoring their usage;
- encouraging healthcare professionals to identify and address the risk factors of NCD, engage early intervention through appropriate screening and counselling, and support patients for self-management; and
- establishing a framework of targets and performance measures to take forward this strategy, oversee its implementation, track progress and evaluate performance.

Direction 6: Strengthen and develop supportive health promoting legislation

Key actions will include —

- providing legislative commitment to protect the health of the public in areas that relate to specific public health issues, such as tobacco control policy, and food labelling and safety.

6



Key Elements for Implementation

6



6.1 This NCD strategic framework is built for the health of Hong Kong people. The key elements for implementation fit an acronym PEOPLE that is illustrated below —

Partnership: Drawing together the strengths of people from various sectors with different knowledge and skills

6.2 The determinants of health are so pervasive that health promotion and disease prevention requires whole community involvement, extending beyond the scope of the health sector into the realms of environment, transport, housing, education, employment, etc. Thus, partnership will be a logical way of working, drawing people from different backgrounds, culture and expertise. Furthermore, implementation can only go smoothly and successfully if it has the backing and involvement of key stakeholders. Collaboration maximises strengths and minimises weaknesses, aiming towards a product that exceeds the sum of its parts. For effective action, there is a need for concerted efforts across a broad public health front, requiring both intrasectoral and intersectoral collaboration (Exhibit 42).

Exhibit 42: Examples of local key partners

- Government at all levels
- District Councils
- Healthcare providers in public and private sectors
- NGOs and relevant community groups
- Business sector and employers
- Academics
- Mass media
- Members of the public
- Schools
- Religious groups

Environment: Linking health promotion and disease prevention with the total environment

6.3 An important determinant of people's health is the environment in which people live, learn and work, including the social context against which they interact. The society should create a health supporting environment which would enable people to make healthy choices and live healthily. As such, the "setting" approach is better able to support local health promotion actions by bringing together policy support, intersectoral collaboration and community action in addressing socio-economic factors that underpin all facets of human activity. Examples of healthy setting approaches include healthy cities (Exhibits 43), healthy schools, healthy workplaces, healthy restaurants and healthy markets.

Exhibit 43: A healthy city strives to provide¹:

- a clean, safe physical environment of high quality (including housing quality);
- an ecosystem that is stable concurrently and sustainable in the long term;
- a strong, mutually supportive and non-exploitative community;
- a high degree of participation and control by the public over the decisions affecting their lives, health and well-being;
- the settlement of basic needs (for food, water, shelter, income, safety and work) for all city's people;
- access to a wide variety of experiences and resources, with the chance for a broad channel of contact, interactions and communication;
- a diverse, vital and innovative city economy;
- the encouragement of connectedness with the precedent, with the cultural and biological heritage of city dwellers and with other groups and individuals;
- a form that is compatible with and enhances the preceding characteristics;
- an optimum level of appropriate public health and sick care services that is accessible to all; and
- high health status (good health and low diseases profiles).

(Source: WHO, 1997)

Outcome-focused: Ensuring optimal investment of resources with greatest health gains through monitoring of health outcomes

6.4 Achievements in improving population health hinge on monitoring health outcomes and determining the extent to which health gains are attributable to the interventions. Healthcare providers, public health practitioners and administrators need to document and demonstrate how much of the NCD disease burden has been alleviated after the integrated mechanism for preventing and controlling NCD has been put in place locally. Furthermore, health and associated outcomes have to be communicated with stakeholders and the people of Hong Kong.

Population-based Intervention: Placing emphasis on whole population for collective health benefits

6.5 Recognising that many interrelated factors contribute to health, population-based intervention seeks to promote healthy behaviours, control the determinants of incidence and achieve an overall lowering of the risk in the total population. Since unhealthy lifestyle practices and NCD are common among the local population, even modest changes in risk factor levels through population-based interventions can be expected to yield significant improvements in public health (Exhibit 44).

Exhibit 44: North Karelia Project: from demonstration project to national activity^{2,3}

The North Karelia Project, as a demonstration project, was launched in Finland in 1972 in response to the local petition to get urgent and effective interventions to help reduce the burden of exceptionally high cardiovascular disease mortality rates in the area. In co-operation with local authorities and experts, as well as with the WHO, the North Karelia Project was implemented to carry out a population-based intervention through community organisations and the action of the people themselves. Comprehensive activities targeted at lifestyle modification have been used. Health and other services, schools, NGOs, mass media and food industry were involved.

After the early success of this pilot project, with significant net reductions in both risk factors and cardiovascular disease mortality in the region, intensive and comprehensive activities started at the national level. After 25 years, remarkable changes took place in Finland with lowered smoking rates among men, major dietary changes, and serum cholesterol and blood pressure levels fell markedly. During the same period in North Karelia, among the male population aged 35-64 years, the cardiovascular disease mortality rate declined by 68%, cancer mortality by 44% and deaths from all causes by 49%. The respective changes for the whole of Finland have been nearly as great: for example, ischaemic heart disease mortality went down by 65%. Separate analyses have shown that most of this decline in ischaemic heart disease mortality could be explained by changes in the main risk factors among the entire population. This demonstrates that population-based intervention involving community organisations and with strong people's involvement could yield success.

Life-course Approach: Addressing the cumulative adverse effects by fostering health from womb to tomb

- 6.6 The risks of developing NCD accumulate with age and are influenced by factors acting at all stages of life. Thus, interventions throughout life can help prevent progress of diseases. Those that secure growth and development in early life, and maintain the highest possible level of health and function in adult life are important in reducing the risk of NCD in later years. By utilising opportunities at all life stages, it may be possible to achieve reduction in premature deaths in the highly productive stages of life, fewer disabilities, more people enjoying better quality of life, more people participating actively as they age, and lower costs of medical treatment and care services (Exhibit 45).

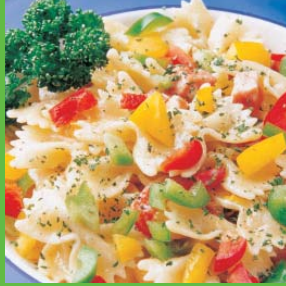
Exhibit 45: Life-course approach to promote health and prevent illness⁴

- **For newborns (up to one month) and infants (up to one year)**, growth and development are of prime importance. Prevention for these very young children should include issues like breastfeeding, appropriate and nutritious complementary foods, good hygiene practices, and caring behaviours that contribute to healthy development.
- **As a child moves through infancy, school-age into adolescence**, the development of lifestyle behaviours takes on greater importance e.g. smoking, exercise and eating. The major health burdens in the adolescent years are related to sexual and reproductive health, substance misuse, and accidents and injuries.
- **By adulthood and middle age**, NCD become the leading causes of morbidity, disability and mortality. However, many NCD are preventable or can be postponed. In fact, the early decline in functional capacity of middle-aged and older people (such as lung capacity, muscular strength, and cardiovascular output) is largely due to the accumulated risk brought on by lifestyle behaviours such as smoking, stress, alcohol misuse, overwork, physical inactivity, unhealthy diet, as well as environmental factors.
- Although **older people** often experience illness, it is possible to minimise disabilities and maintain independence till advanced age. Through individual efforts in maintaining a healthy lifestyle and public policy measures that address the social, financial and physical security needs of people as they age, healthy ageing can be achieved for the elderly population.

Empowerment: Giving everyone the opportunity to achieve one's full potential

6.7 Empowerment, as a core method for health promotion and disease prevention, is a process through which people gain control over decisions and actions that influence health. The public should be empowered so as to be able to make healthy behavioural choices, equipped with appropriate skills to interact effectively with healthcare services, and provided with opportunities to assume responsibility and participate in self-care. In this connection, there is a need for those working in the health and non-health sectors to possess the knowledge and skills in health promotion and disease prevention, which include behavioural modification, early detection of diseases, proper use of medical and health services and on-going support for those who are ill.

7



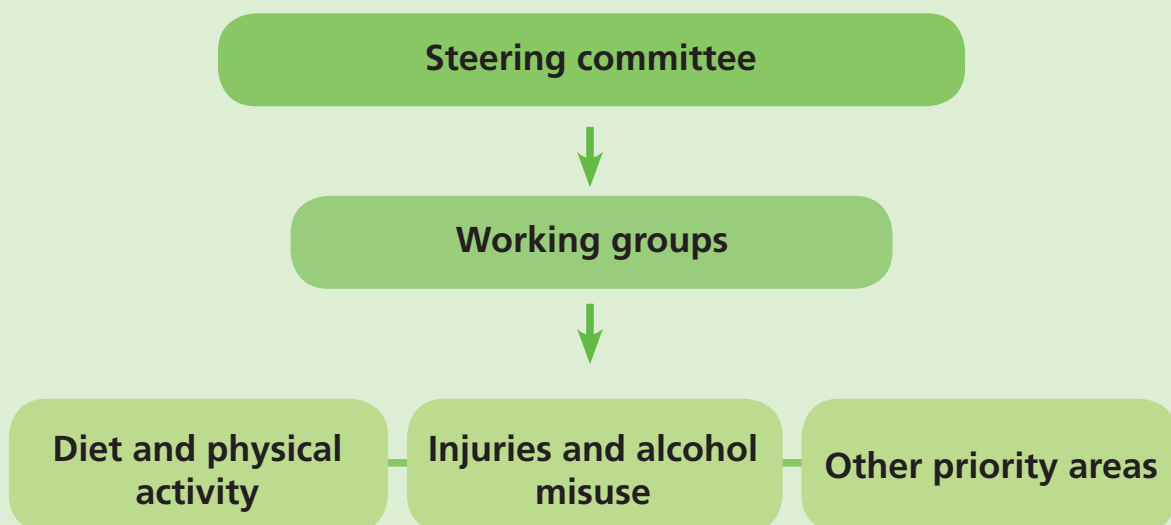
Making It Happen



- 7.1 We have set out in this document the issues we need to address and the principles on which we will base our actions. To steer and take the matter forward, a strategic management structure is required to oversee the development and overall progress of the implementation plan (Exhibit 46).

- 7.2 It is recommended to set up a high-level steering committee comprising representatives of the Government, public and private sectors, academia, professional bodies, industry and other local key partners. The steering committee shall deliberate on and oversee the overall roadmap and strategy, including the setting up of working groups.

Exhibit 46: Strategic management structure



Remark: The tasks on control of tobacco use, cancer and poison control are taken up by the DH's Tobacco Control Office, Cancer Coordinating Committee and the Hong Kong Poison Control Network respectively.

7. Making It Happen

- 7.3 The working groups will advise priority actions, draw up targets and action plans, including practical guides, tools and specifications of how the various sectors of the society can participate as partners (Exhibit 47).
- 7.4 To tackle imminent problems caused by the leading risk factors of overweight and obesity, heart diseases and diabetes mellitus, a working group on diet and physical activity will first be established in 2008. Working groups on the other priority areas can be set up in phases thereafter. In the meantime, existing services and programmes in all involved sectors will continue and be strengthened.

Exhibit 47: Proposed objectives and tasks of the working groups

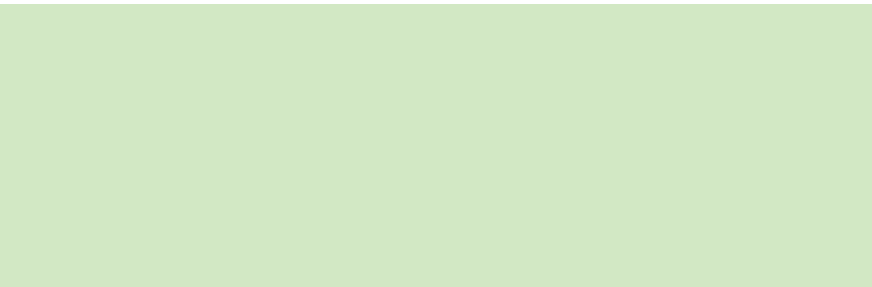
1. **Draw the baseline:** Review current data and practices in Hong Kong.
2. **Identify best practices:** Review international best practices and intervention strategies, including clinical guidelines and good practices.
3. **Set the goals:** Suggest specific and measurable targets to be adopted.
4. **Draw up action plans:** Identify the effective strategies and devise implementation plans designed for Hong Kong with priorities.
5. **Oversee the implementation:** Monitor progress and report to the steering committee.

Call for Support

- 7.5 The Government will have a leading role in taking the agenda forward and mobilise intersectoral collaboration for health promotion and disease prevention. This strategic framework is a call for the whole community to consider and take appropriate actions for the prevention and control of NCD.
- 7.6 By establishing cost-effective prevention and control strategies along the line suggested in this framework, many aspects of life could be improved for our population. The outcome on health could be enhanced and the pressure on NCD treatment and rehabilitation expenditures could also be relieved. It is envisaged that successful delivery of the strategy will contribute to the development of a more sustainable healthcare system, with better integration of preventive and curative care services in achieving health for all and by all.
- 7.7 It is time for the Hong Kong community to act together in combating NCD. We urge every sector and individual to support this strategic framework and join hands to make Hong Kong a healthier place to live.



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