

# 6

## Healthy Community

**Health Management  
and Social Care  
(Secondary 4-6)**

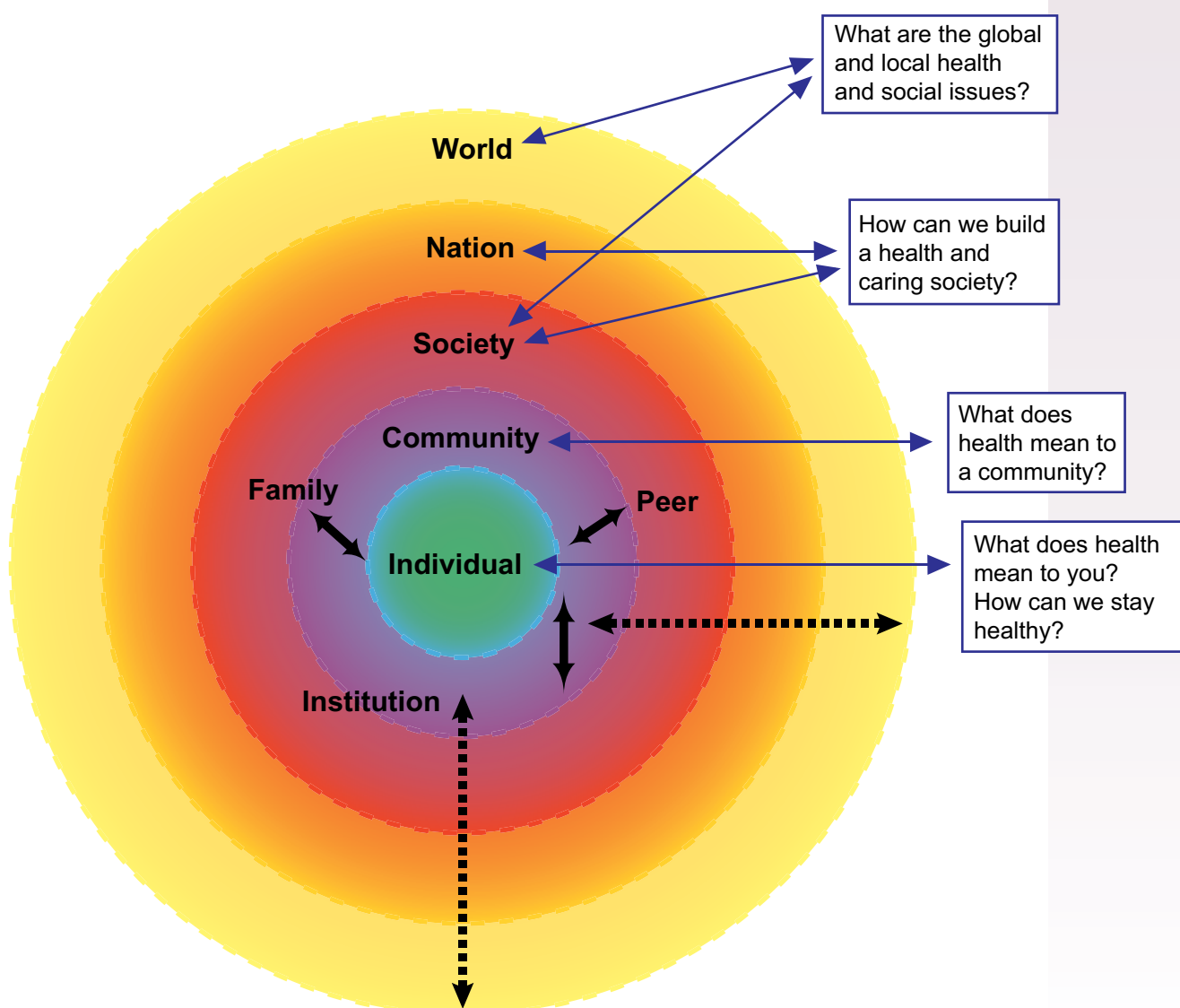




# Health Management and Social Care Booklets

The Health Management and Social Care (HMSC) curriculum aims to enable students to explore phenomena related to health and sickness, well-being and ill-being, and personal and community care at different levels, i.e. the individual, the family, the peer group, the community, the institutional setting, society, the nation and the world (Figure 1), and from various dimensions, as well as the relationships between them.

Figure 1 The Various Levels and Essential Questions of HMSC



This part includes 19 booklets of learning and teaching reference materials for teachers. The topics and information in these booklets are selected and organized based on the five essential questions from various levels mentioned in the curriculum design in Chapter 2 of the Health Management and Social Care Curriculum and Assessment Guide (Secondary 4-6)(2007). Each essential question is elaborated in 2-5 booklets. The booklets facilitate teachers to develop an overall framework and identify the key concepts of the curriculum so that their students will be more able to critically assess the relevant issues. Details of these booklets are as follows:

Levels	Essential Questions	Booklets	
Individual, Family and Peer	What does health mean to you?	1	Personal Needs and Development across Lifespan
		2	Health and Well-being
	How can we stay healthy?	3	Physical Well-being - Healthy Body
		4	Mental Well-being - Healthy Mind
		5	Social Well-being - Inter-personal Relationship
Community	What does health mean to a community?	6	Healthy Community
		7	Caring Community
		8	Ecology and Health
		9	Building a Healthy City
Society	How can we build a healthy and caring society?	10	Health Care System
		11	Social Welfare System
		12	Medical and Social Care Professions
		13	Health and Social Care policies
		14	Social Care in Action
Local and Global Societies	What are the local and global health and social issues?	15A	Health and Social Care Issue - Ageing Population
		15B	Health and Social Care Issue - Discrimination
		15C	Health and Social Care Issue - Domestic Violence
		15D	Health and Social Care Issue - Addiction
		15E	Health and Social Care Issue - Poverty

The expected learning outcomes in terms of knowledge, skills, value and attitude as well as the content outline will be listed as an overview. Teachers are advised to adapt and flexibly use the materials based on the school or community situation, background of students, interest, learning skills and the previous knowledge of students. Social issues as well as the graphic organizers illustrated in Part 3.1.5 can be used to help student organize and analyze complex and abstract concepts so that students are able to construct their knowledge effectively, consolidate their learning and achieve deep understanding.

# What does health mean to a community?

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There are different meanings of community. A community can be referred to as a group of residents who are living in the same geographical area, sharing a common living environment and quality of life. A community can also be referred to as a group of people who have common lifestyles, beliefs, backgrounds, interests or functions. In addition, a community can also be a social network in which people care for each other. In this respect, what is a healthy community?

A healthy community refers to a healthy environment, a group of healthy citizens with healthy lifestyles and competence in disease prevention and a support network which promotes health and social care.

Apart from individual, family and social groups, the community and its environment are also factors affecting physical, mental and social health. A healthy community helps promote one's physical health and strengthen his/her adaptability and mental health in adversity and at different life stages.

In 1986, the World Health Organisation (WHO) proposed the Healthy Cities Project. Healthy cities are concerned about the issues beyond the physical health of an individual. They are also concerned about the cultural life, the living environment, the social life and the community participation etc. A healthy community is also a sustainable community, having a sustainable environment, living style and resources. All of them are closely related to health.

There are four booklets under the essential question 'what is a healthy community?'. They are: *Booklet (6) – Healthy Community*, exploring communicable and non-communicable diseases and how they affect community health so that students are able to build a healthy community through establishing a healthy lifestyle; *Booklet (7) – Caring Community*, exploring social factors such as social support which affect health so that students are able to suggest how to build a caring community or society to promote personal and community health; *Booklet (8) – Ecology and Health*, analyzing the relationship between health and the environment so that students are able to cultivate and maintain a healthy environment for the community; *Booklet (9) Building a Healthy City*, introducing the concepts of healthy cities and how they are applied to different settings to promote health and build a caring community.

The topics of Health Management and Social Care Curriculum and Assessment Guide included in the Booklet 6 -9 are listed in the following table:

Booklet		Topics in HMSC Curriculum and Assessment Guide
6	Healthy Community	<p><u>Compulsory part</u></p> <p>2C Recent increases in vulnerability and exposure due to lifestyle changes, globalization and family changes</p> <p>3A The notion and practice of health promotion, health maintenance, ill-health prevention, social care, welfare and community services</p> <p>4A Disease prevention (primary, secondary and tertiary) and using precautions in our daily living patterns and lifestyles</p>
7	Caring Community	<p><u>Compulsory part</u></p> <p>2A Structural issues related to health, social care and personal and social well-being</p> <p>2C Recent increases in vulnerability and exposure due to lifestyle changes, globalization and family changes</p>
8	Ecology and Health	<p><u>Compulsory part</u></p> <p>3A The notion and practice of health promotion, health maintenance, ill-health prevention, social care, welfare and community services</p> <p>3B Developing health and social care / welfare policies</p> <p>4C Aspects of risk assessment and health management</p>
9	Building a Healthy City	<p><u>Compulsory part</u></p> <p>4B Health and safety</p> <p>4C Aspects of risk assessment and health management</p>

# 6 Healthy Community

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## Learning Targets

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Through the study of the topic on healthy community, students are expected to:

### Values and attitudes

- ❖ Demonstrate a commitment to the promotion of personal health and a healthy lifestyle; and
- ❖ Encourage and support others in making health decisions for healthier life styles.

### Knowledge

- ❖ Understand the impact of globalization on health and well-being;
- ❖ Identify factors leading to the increases in vulnerability and exposure to communicable and non-communicable diseases;
- ❖ Analyse the relationships between lifestyle changes and common illnesses;
- ❖ Understand the protective factors and risk factors to health and well-being;
- ❖ Differentiate among primary, secondary and tertiary disease prevention;
- ❖ Understand how personal practices and attitudes contribute to disease prevention;
- ❖ Understand the concepts and models of health promotions;
- ❖ Evaluate the roles of government in maintenance and promotion of public health; and
- ❖ Understand the roles of individual, community and government in health maintenance and ill-health prevention.

### Skills

- ❖ Carry out health practices that contributes to personal and public health.

## Key Questions

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To achieve the above learning targets, teachers may use the following questions to enhance understanding:

- ❖ How do diseases affect the health of an individual and a community?
- ❖ Why do we need to develop a healthy lifestyle?
- ❖ How can we build a healthy community?

## 6.1 Trends of Diseases and Illnesses

A disease would affect the proper functioning of the body or mind. Communicable diseases are those caused by germs and can be passed from one person to another. Non-communicable diseases are not spread through contact. Instead, they are caused by a breakdown in body cells and tissues. In recent years, new communicable diseases have emerged due to mutations in pathogens and have had a great impact on global health. Meanwhile, caused by unhealthy lifestyles, non-communicable diseases have become the main killers in the most developed countries. Therefore, we should know more about two types of diseases, including how they relate to our lifestyles, in order to help us develop a healthy lifestyle and suggest some solutions to meet global health challenges.

This booklet first highlights with the diseases brought about by globalization and follows with an introduction of the communicable and non-communicable diseases as well as their relationships with lifestyle factors. These lifestyle factors increase the risks of ill-health. The risks can be prevented through the three levels of disease prevention: primary, secondary and tertiary prevention. There is a great link between hygienic practice, risk behaviour and the emergence of communicable and non-communicable diseases. The last part of this booklet will discuss how to implement disease prevention in different aspects and different government strategies in disease prevention in Hong Kong.

### (A) Globalization and Afflictions

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Globalization speeds up the flow of money (capital), goods, service (products), concepts, information and population (labour). Due to the increased international mobility of capital, the integration of financial markets, the linkages of international trade and production and the exchange of ideas of people from different locations, the economies of different countries become more interdependent with the extended networks of investment, production, trade and consumption. A dominant characteristic of contemporary globalization is that it has introduced or expanded risks to health that transcend national borders in their origin or impact. One of the major threats is the emerging and re-emerging of communicable diseases.

Over the last two decades nations worldwide have been confronted with outbreaks of virulent strains of many old diseases and newly recognised pathogens, including, most notably, HIV/AIDS. Most recently, the well-publicised global threats of severe acute respiratory syndrome (SARS) in late 2002 and 2003 and outbreaks of both human (H3N2) and avian (H5N1) influenza less than a year later captured public and media attention. Due to high human mobility in the era of globalization, the SARS epidemic spread rapidly from its origins in southern China to more than 25 other countries within months. In addition to the number of patient infected with the SARS virus, totaling more than 8,000 cases and 774 known deaths, the disease had profound economic and political repercussions in many of the affected regions.

Meanwhile, the cross border transmission through international travel and trade is causing an increase in prevalence of diseases within industrial countries, previously endemic only in the developing countries. An example is the way the prevalence of tuberculosis (TB) and multidrug-resistant TB is increasing globally. High mobility of people living with HIV contributing to the spread of HIV around China is another example. The characteristic of recent infectious disease outbreaks is that an infectious disease in one country is most likely to become an international threat. An outbreak in one country can spread rapidly across national borders and become a regional or even global concern.



## Influenza Pandemic

According to the restructuring of the World Health Organization (WHO) on Pandemic Phases in 2009, there are six phases to describe the observable phenomena of an influenza pandemic: Phases 1-3 correlate broadly with planning and preparedness activities; Phase 4 signals a potentially major change in the risk of a pandemic; Phases 5-6 highlight the need to implement responses and mitigation efforts. The details are as follows:

- ✧ Phase 1 – No animal influenza viruses circulating among animals have been reported to cause infection in humans.
- ✧ Phase 2 – An animal influenza virus circulating in domesticated or wild animals is known to have caused infection in humans and is therefore considered a specific potential pandemic threat.
- ✧ Phase 3 – An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.
- ✧ Phase 4 – Human to human transmission of an animal or human-animal influenza reassortant virus, able to sustain community-level outbreaks has been verified.
- ✧ Phase 5 – The same identified virus has caused sustained community level outbreaks in two or more countries in one WHO region.
- ✧ Phase 6 – In addition to the criteria defined in Phase 5, the same virus has caused sustained community level outbreaks in at least one other country in another WHO region.

## (B) Epidemiological Changes



### Epidemic Disease, Another Name of Infectious Disease?

Epidemiology is an important school in public health, focusing on the study of the distribution of diseases and the health status of a population as well as the factors contributing to the distribution. It also aims to explore ways of disease prevention and control in health promotion. In fact, it is an important branch of preventive medicine. However, epidemiology does not only include infectious diseases. It also includes other diseases such as chronic diseases (such as cancer, heart disease, diabetes, high blood pressure, etc.), mental illness, suicide, accidents and so on. It is also concerned with health issues, like the risk factors of various diseases (such as smoking, obesity, nutrition intake status, lifestyle, etc.).

## 1. World-wide Trends – Burdens of Disease

### Burden (1) – Non – communicable Diseases

With sustained economic development, improved education for the general public, improvements in nutrition and sanitation, as well as advancements in medical and health care, the world has experienced a significant decline in mortality in the 20th century. At the same time, there has been a world-wide trend in the increased prevalence of non-communicable diseases, such as cancers, stroke, diabetes, and heart disease. According to WHO, non-communicable diseases are fast replacing the traditional infectious diseases (such as typhoid, tuberculosis etc.) as the leading cause of disability and premature death.

*'Promoting Health in Hong Kong: a Strategic Framework for Prevention and Control of Non-communicable Diseases'* (Department of Health, 2008) states that:

- 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.

### **Burden (2) - Mental Disorders**

Other than the above non-communicable diseases, neuropsychiatric conditions (or mental illnesses) and injuries are two major rising health burdens.

According to the report named 'Integrating Mental Health Into Primary Care: A Global Perspective' published by the WHO in 2008, 154 million people suffer from depression and 25 million people from schizophrenia; 91 million people are affected by alcohol use disorders and 15 million by drug use disorders. As many as 50 million people suffer from epilepsy and 24 million from Alzheimer and other dementias. Around 877 000 people die from committing suicide every year. Within countries, the overall one-year prevalence of mental disorders ranges from 4% to 26%. Variability in prevalence across countries might be due to cross-cultural limitations of diagnostic tools and reporting biases. Prevalence estimates also are likely to be influenced by stigma and discrimination.

### **Burden (3) - Injuries**

Injuries, intentional or unintentional, are caused by accidents, violence and self inflicted incidents such as suicides. Older populations, in general, have a higher share of accident-related injuries such as falls and pedestrian traffic accidents. Although these injuries are not a major cause of mortality, their impact on functional and psychosocial disability could be enormous. Greater attention to address this area is therefore needed.

## **2. Local Situation**

*'Promoting Health in Hong Kong: a Strategic Framework for Prevention and Control of Non-communicable Diseases'* (Department of Health, 2008) reports that in 2006, approximately 61% of total registered deaths in Hong Kong were attributed to four major preventable non-communicable diseases. They were cancer (32.3%), heart disease (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.

## 6.2 Communicable Diseases

### (A) Communicable diseases

Communicable diseases (also called infectious diseases) refer to the transmissible diseases that infect human beings. They are caused by pathogens which invade the body, where they multiply or release toxins to cause damage to normal cells and their functions. In severe cases, they may lead to death. These pathogens can spread through certain modes of transmission, passing the disease from one infected source to another.

According to the World Health Organization (WHO), communicable diseases account for more than 13 million deaths every year, including nearly two-thirds of all deaths among children under age 5. Although the great majority of these deaths occur in developing countries, infectious diseases do not recognise international boundaries. They present a substantial threat to people in all parts of the world. In recent years, this threat has grown in volume and complexity. New diseases have emerged, others once viewed as declining in significance have resurged, and many have developed substantial resistance to known antimicrobial drugs.

Communicable diseases may be classified according to the causative agent, the clinical illness caused, or the means of transmission, etc.

#### 1. Causative Agents

The causative agents include bacteria, viruses, parasites and fungi.

##### **Bacteria**

- ✧ Bacteria are an important group of micro-organisms. Bacteria are very small. They do not have a nucleus and organelles. Some bacteria can be harmful and cause diseases such as cholera.
- ✧ There are different types of bacteria and they can be classified according to their different shapes. These are:
  - ◆ Bacilli or rod-shaped bacteria, e.g. *Salmonella typhi* which causes typhoid fever
  - ◆ Cocci or circular shaped bacteria, e.g. *Staphylococcus aureus* which causes boils
  - ◆ Spirilla or spiral shaped bacteria, e.g. *Treponema pallidum* which causes syphilis
  - ◆ Vibrio or curved shaped bacteria, e.g. *Vibrio cholerae* which causes cholera.

## Fungi

- ✧ Fungi are microorganisms that can grow in or on the body, causing infections of internal organs or of the skin, hair, and nails such as candidiasis, athlete's foot.

## Parasites

- ✧ Parasites such as protozoa (one-celled animals), worms, or insects are a kind of organism. They are bigger than viruses and bacteria in size. They must live on or inside a human or other organism to survive. An animal or plant harboring a parasite is called its host. Parasites live at the expense of the host and may cause illness.

## Virus

- ✧ Viruses are the smallest organisms on the earth. The size of a virus is about one-tenth of the tip of a bullet. These extremely small infectious agents are only visible under an electronic microscope.
- ✧ There are many types of virus which are harmful to the body and cause disease. Viruses reproduce in the body by invading a cell, multiplying and causing the cell to burst. HIV is an example of a virus.



Why antibiotics should not be used for virus infection?

Antibiotics were invented to control the growth of bacteria by destroying their structure or enzymes. Since viruses have different structures and enzymes from bacteria, antibiotics do not have any effect on viruses. Worse still, the use of antibiotics for virus infection leads to drug-resistant bacteria which are even more difficult to control.



## 2. Duration of Pathogen Invasion

- ✎ Acute infectious diseases: such as typhoid, cholera, diphtheria, smallpox, plague.
- ✎ Chronic diseases: such as sexually transmitted diseases, tuberculosis.

## 3. Infected Organs or Body Parts

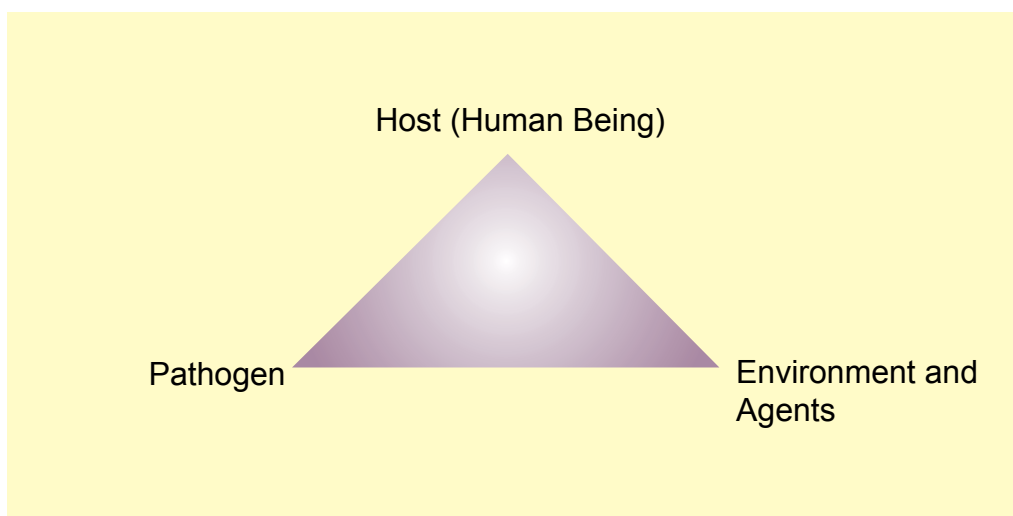
- ✎ Respiratory infection: such as diphtheria, whooping cough, tuberculosis
- ✎ Gastrointestinal infection: typhoid fever, cholera, dysentery
- ✎ Skin and mucous membrane infection: trachoma, tetanus, skin psoriasis
- ✎ Urinary tract infection: gonorrhoea, trichomoniasis

## 4. Media of Transmission

Communicable diseases can be understood as a parasitic relationship between micro-organisms and human beings. Pathogens search for a suitable living environment in the human body for growth and reproduction, and cause damage to the host body. They survive and reproduce in the host body until they are transmitted to another host through different media.

The following triangle illustrates the three main factors contributing to the occurrence of communicable diseases. The disease can be prevented if any of the two factors are under control.

Figure 6.1 Triangle of Communicable Diseases



### **Host (e.g. Human Being)**

The host refers to the infected individual. Not all the agents are pathogenic (infection  $\neq$  illness). Some people are more prone to communicable diseases. For instance, young children and patients with chronic diseases are susceptible to infection due to insufficient body immunity. Other factors include the exposure to pathogens, sex, socio-economic status, health-risk behaviours, vulnerability to infection, immune response, medication.

### **Pathogen**

The transmissibility, pathogenicity and virulence of a pathogen affect the spread of the infectious diseases.

- Transmissibility is both physical movement from one host to another and it is the biological ability to infect the second host once it gets there. The typical examples of contagious diseases are smallpox, measles, chicken pox.
- Pathogenicity is the ability of a pathogen to make people sick such as giving symptoms, signs of dysfunction or pathology. It is revealed in the proportion of the onset of illness to the infected population. It relates to the speed and degree of the destruction the pathogen triggers in the body of the host. Examples of highly pathogenic diseases are smallpox, measles, chicken pox, rabies.
- Virulence is a measure of the severity of the illness produced by a pathogen. The pathogen may have severe symptoms, such as dengue hemorrhage. It may also have serious complications, such as life-long physical disability caused by polio; death caused by rabies occurred in 100% of those infected when the vaccine was absent.

### **Environment and Agents**

Environmental factors are important in the spread of insect-related and zoonotic diseases such as salmonella, rabies, avian influenza. Meanwhile, there are various means of transmission of the pathogens in the environment:

Mode	Explanation	Examples
Direct contact	Infection occurs when one person infects the next by direct person-to-person contact.	Tuberculosis, Sexually transmitted infection
Indirect	Infection occurs when an intermediate carrier is involved in the spread of a pathogen e.g. mosquitoes, birds.	Dengue fever
Droplets	Infected through the contacts of the droplets of an infected person.	Influenza
Inhalation	Spread occurs when pathogens exhaled or discharged into the atmosphere by an infected person are inhaled by and infect another person.	Tuberculosis
Ingestion	Infection can occur when organisms capable of infecting the gastro-intestinal tract are ingested. When these organisms are excreted faecally by an infected person, faecal-oral spread is said to occur. Organisms may be carried on fomites, hands or in food and drink. Some diarrheal viruses are spread by particles of vomit onto environmental surfaces, then via hand contact into mouths.	Hepatitis A, Salmonella
Inoculation	It occurs following a 'sharp' injury when blood which is contaminated is directly inoculated into the blood stream of the victim, thereby causing an infection.	Hepatitis B



### Examples of Communicable Diseases

#### Different Types of Communicable Disease

Centre for Health Protectionc – Health Topic – Communicable Diseases

<http://www.chp.gov.hk/>

## (B) Body Defence and Immunisation

### 1. Immune System

The human body constantly faces attacks from foreign invaders that can cause infection and disease. These invaders range from living microbes, such as bacteria, fungi, parasites, and viruses, to nonliving toxins, chemicals, and drugs.

The immune system controls the way in which the body resists pathogens. The system consists of a number of structures and processes including:

Body Systems / Responses	Defensive Functions
Skin	Provide a protective and waterproof covering to the body
Bone marrow, spleen and all lymphoid tissue except the thymus	Produce immunoglobulins
Layers of mucous membrane which line the mouth, respiratory airways, alimentary canal and the vagina	Produce antimicrobial enzymes as well as mucus which traps any particles
Cilia in the respiratory tract	Sweep particles away from the lungs
Clotting of the blood	Form a protective barrier over cuts and wounds
Secretion of acid in the stomach	Destroy harmful organisms
Enzyme lysozyme presented in tears	Destroy bacteria

It is important for us to have a body defense system to prevent pathogens, like bacteria and viruses, from entering our body and kill or inactivate any pathogen that gains entry into the body. The body's three lines of defense against pathogens are barriers, the inflammatory response, and the immune response.

### **First line of defence (Non-Specific defence)**

Barriers are the first line of defense. Barriers such as the skin, breathing passages, the mouth, and the stomach trap and kill most pathogens with which we come into contact. Skin becomes a physical and chemical barrier against pathogens. Mucus and cilia in the breathing passages trap and remove pathogens. A sneeze or cough can also remove pathogens. Most pathogens that we swallow are destroyed by chemicals in our saliva or by stomach acid.

Figure 6.2 First Line of Defence



### **Second line of defence (Non-specific defences)**

Pathogens that do get into our body can trigger the inflammatory response, the body's second line of defense. In the inflammatory response, fluid and certain types of white blood cells leak from blood vessels into nearby tissues. The white blood cells then fight the pathogens. The white blood cells involved in the inflammatory response are called phagocytes. A phagocyte engulfs and destroys pathogens. During the inflammatory response, the affected area becomes red, swollen, and warm. The inflammatory response may also cause a fever.

Figure 6.3 Second Line of Defence





When we cut ourselves carelessly, why will the wound stop bleeding after a while?

It is because blood clotting occurs! Platelets release a substance to turn soluble fibrinogen into insoluble fibrin which coats blood cells and seals off the cut. Blood clotting is important because this can prevent the body from invasion of pathogens and stop excess bleeding!

### **Third line of defence (Specific defences)**

When foreign organisms enter the bloodstream, the body sets up an active response in order to eliminate those that may cause disease. This is called the immune response. The immune response is the body's third line of defense. The cells of the immune system can distinguish between different kinds of pathogens. The cells of the immune system react to each kind of pathogen with a defense targeted specifically at that pathogen. White blood cells that target specific pathogens are called lymphocytes.

There are two major kinds of lymphocytes — T cells and B cells.

Antigens are molecules that the immune system recognises as either part of the body, or as coming from outside the body. Antigens are substances that are recognised as a threat. They trigger the response of the body's immune system.

T cells are manufactured in the bone marrow but they are matured in the thymus gland. A major function of T cells is to identify pathogens by recognising their antigens. When the antigen enters the body, these cells will multiply and circulate around the bloodstream. On contact with the cell containing the antigen they attack and destroy it.

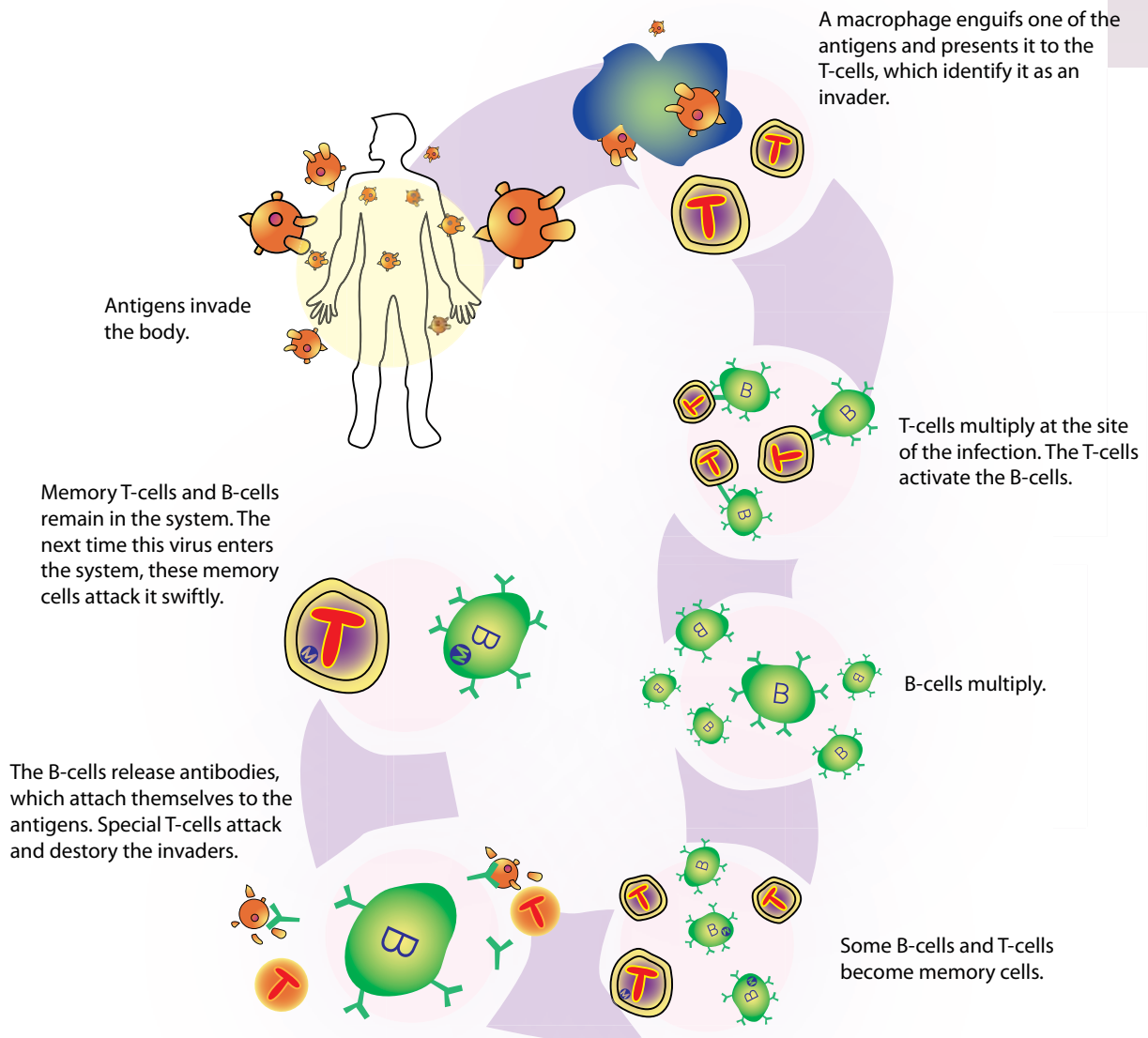
B Cells are also manufactured in the bone marrow and then transported to the lymph nodes. When an antigen enters the lymph nodes, B Cells divide rapidly and produce antibodies such as immunoglobulins which travel through the bloodstream. They provide the necessary protection against bacteria and viruses. Each kind of B cell produces an antibody that can only bind to one kind of antigen.

Figure 6.4

## How the Immune System Responds to Germs

### How the Immune System Responds to Germs

Notice how the different cells in the immune system work together to respond to an invading virus.

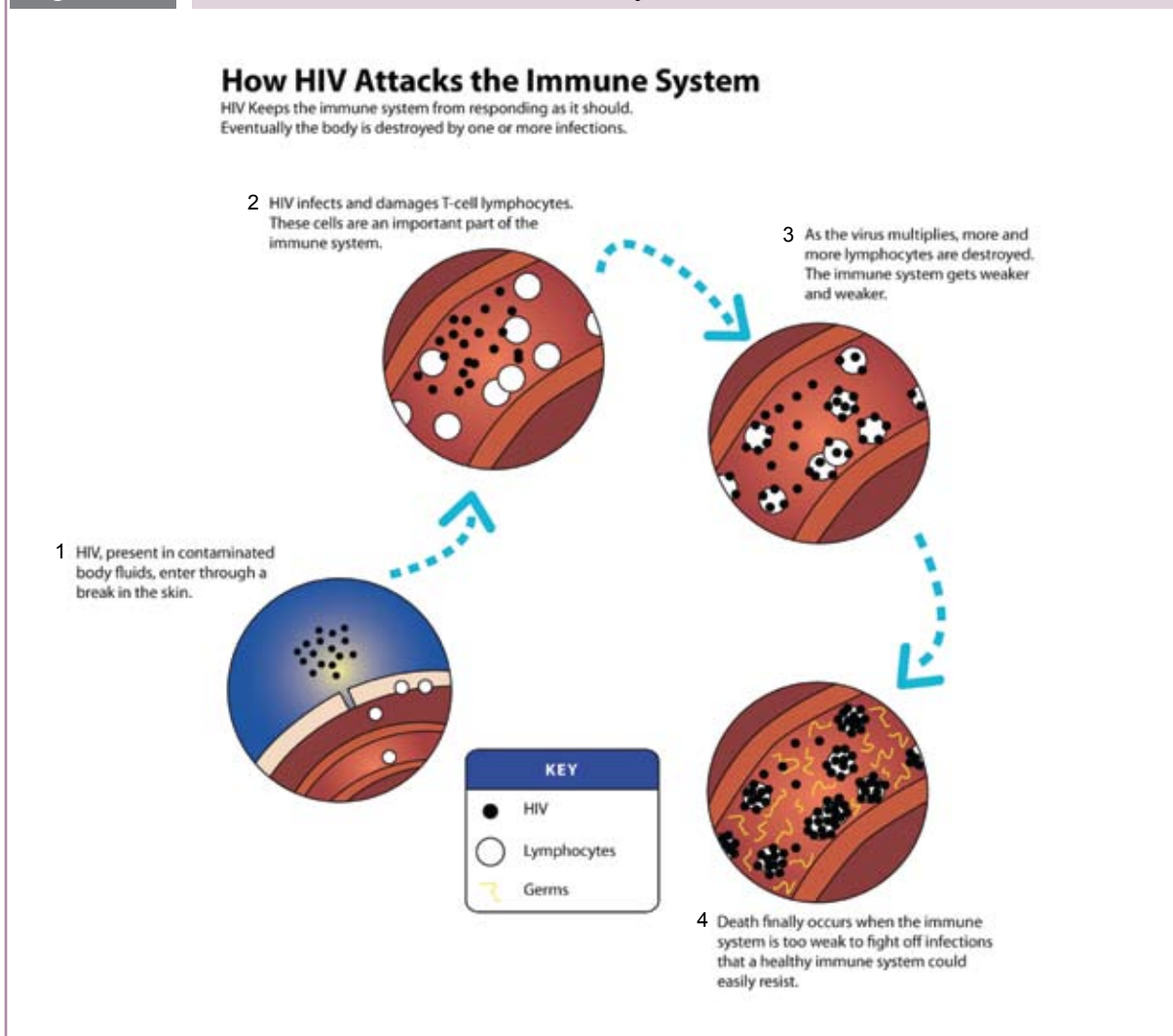




## Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV / AIDS)

AIDS stands for Acquired Immune Deficiency Syndrome. It is caused by a virus called Human Immunodeficiency Virus, HIV. White blood cells are part of the body's defence (immune) system. They normally help the body fight off cancers and infections by germs. The AIDS virus, HIV, attacks and kills certain white blood cells, thus destroying this important defence function. As a result, AIDS patients easily develop infections and cancers which normally do not affect healthy persons.

Figure 6.5 How HIV Attacks the Immune System







## Human Immunodeficiency Virus / Acquired Immune Deficiency Syndrome (HIV / AIDS)

HIV is present in blood, semen, vaginal secretions and other deep body fluids. A person can be infected by the virus through 3 major routes:

- ✧ (i) Sexual contact:  
The virus is present in semen and vaginal secretions. The infection can be passed from men to men, men to women and women to men by various forms of sexual contact, including vaginal intercourse, anal intercourse and oral sex. Anal sex is by far the most risky.
- ✧ (ii) Blood:  
HIV thrives in blood. Hence, it can be transmitted by contaminated blood and blood products. Injecting drug users are particularly at risk of contracting HIV through the sharing of unsterilised needles and syringes. HIV may also be transmitted by unsterilised instruments for tattooing, ear-piercing and acupuncture, but the actual chance of getting infected in these instances is, however, quite remote.
- ✧ (iii) Mother to infant:  
Women who are infected by the virus may pass the infection to their infant during pregnancy, around the time of birth, or during breast feeding.

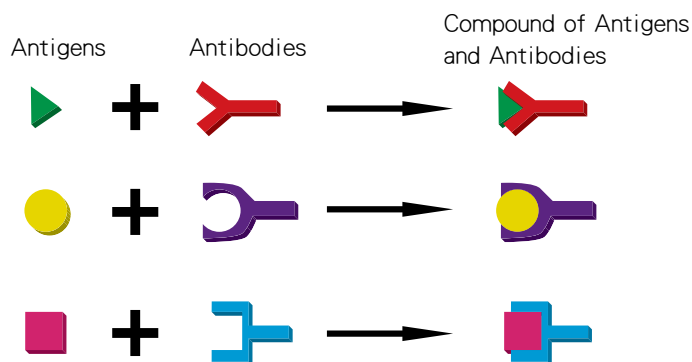
## 2. How Immunity is built?

Immunity refers to our biological defenses to avoid the invasion of diseases. It is in the form of the production of antibodies which circulate in blood, lymph and other body secretions. These antibodies can protect the body against certain viruses. Thus a person is immune to a disease when the antibodies are produced. Immune response is the way in which the body's immune system responds when foreign antigens are introduced. Antibodies are produced which contribute with these foreign antigens to inactivate them. This is the basic mechanism of active immunity. The main cells involved are white blood cells called lymphocytes.

Immunity and immune responses are produced through the following process:

- ✎ Lymphocytes can identify the invader (antigens). The antigen may be bacteria, pollen, or the toxins produced by bacteria.
- ✎ The emergence of an antigen can stimulate the immune system to produce antibodies. Each antigen can create a new antibody.
- ✎ The antibodies circulate in the blood. When they encounter the antigen, they will be combined to form a compound. The compound is then exterminated. The process of the production of antibodies when the body is invaded by an antigen for the first time is called primary immune response.

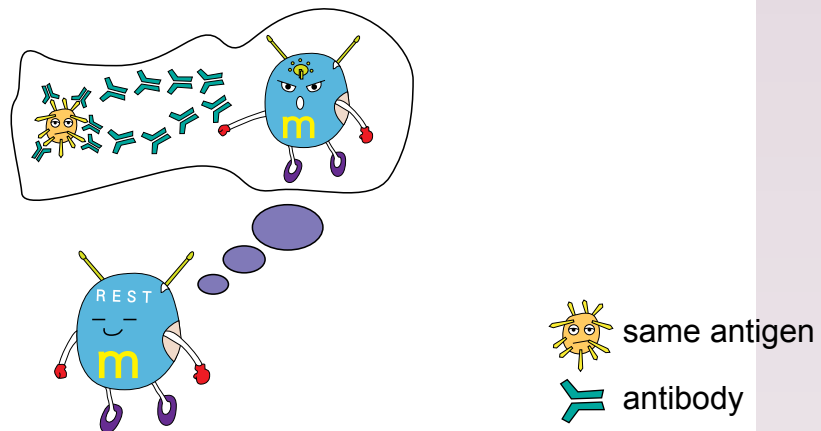
Figure 6.6 Combination of Antigens and Antibodies



- ✎ After recovery from the infection, some of the lymphocytes will become 'memory cells'. When these 'memory cells' encounter the same antigen later, they are able to produce the antibodies in a short period of time.

Figure 6.7

'memory cells' encounter the same antigen and produce the antibodies



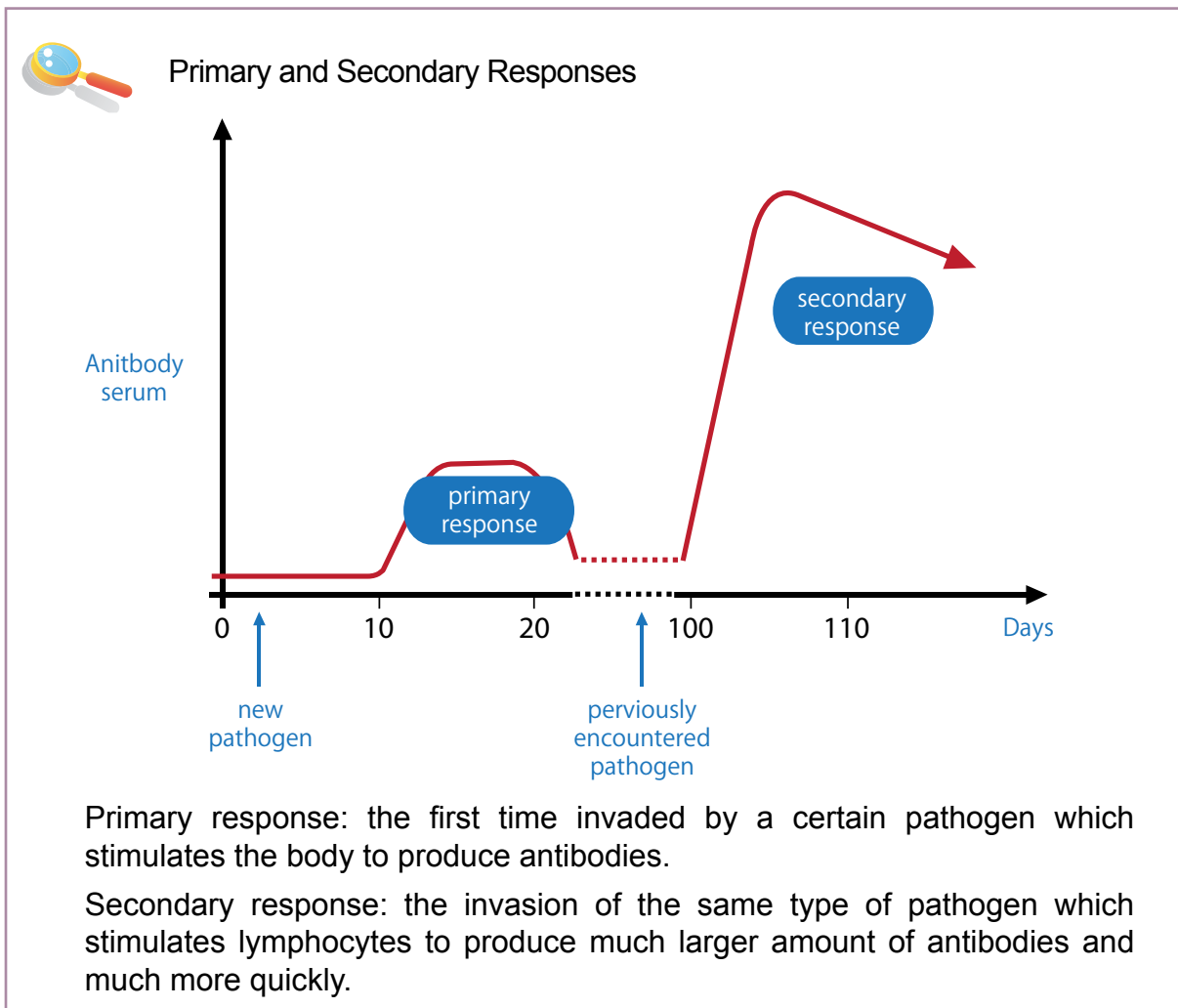
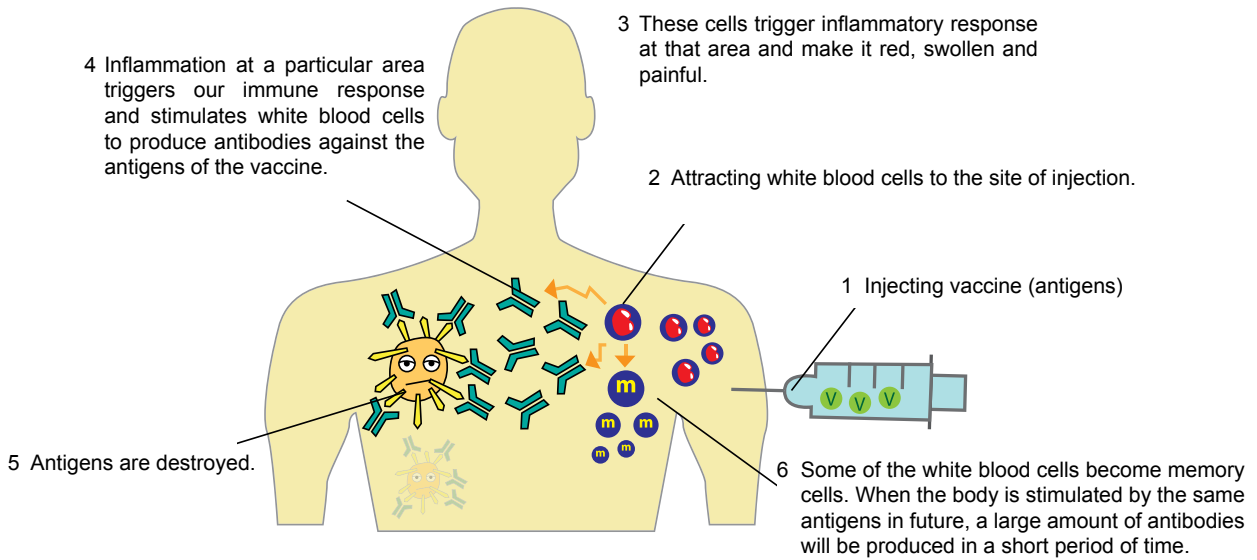
### 3. Vaccination

Vaccines are dead or inactivated organisms or purified products derived from them. Vaccination is a method of producing immunity by injecting dead or weakened pathogens, or closely related micro-organisms into the body in order to stimulate an immune response. It is a means whereby individuals can be protected from the disease or a fatal attack.

In some instances, people receive antibodies from another person to help build their own immunity. This is known as passive immunity. Infants are born with immature immune systems and receive important antibodies from their mothers, both during pregnancy (across the mother's placenta) and after birth from breast milk. These antibodies usually disappear within 6 to 12 months. During this period, they help protect the infant against a range of infections, including pneumonia, bronchitis, influenza, and ear infection. Doctors also can give people gamma globulin, an antibody preparation that offers temporary immunity to patients who might need this protection.

Primary and secondary immune responses and memory cells have led to the development of vaccines and vaccinations for controlling infections. The idea is to introduce a weakened strain of a particular antigen into the body to trigger the primary immune response. When a person gets an immunization, or vaccine, the body's immune system learns to recognise that particular bacteria or virus. If, sometime later, the person is exposed to the germ again, the body can fight it off and not come down with the disease.

Figure 6.8 Vaccination



## **Implementation of vaccination programs**

Vaccination programs in Hong Kong are provided through the following three services. The medical practitioners in the private sector also provide vaccinations.

- **Family Health Services:** It provides immunisation services for infants to children under five. It also reminds parents in accordance with recommendations of the immunisation program of the Department of Health to keep the vaccinations of their babies and young children updated.
- District offices also provide vaccination services for children at schools and in other remote areas. The immunisation is under the supervision of the community health workers of the district offices according to the schedule of the immunisation campaigns.
- **Tuberculosis and Chest Service:** It provides Bacille Calmette-Guerin (BCG) vaccination programs. This service is provided by a team of staff of the Family Health Service of the Department of Health for new born babies. These members will also provide vaccinations to students of primary and secondary schools.

## **(C) Organisations for Disease Control**

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### **1. International Organisations**

#### **World Health Organization (WHO)**

- The mission of the WHO is to assist Member States in reducing dissemination of infections associated with healthcare , by assisting with the assessment, planning, implementation and evaluation of national infection control policies.
- The ultimate goal is to assist Member States to endorse quality promotion of health care which is safe for patients, health care workers, and others in the health care setting and the environment, and to accomplish these goals in a cost-effective manner.
- The tasks of WHO are to:
  - \* Develop a cross-sectional, multidisciplinary WHO initiative for prevention and control of infections associated with healthcare;
  - \* Provide support to help prevent the spread of infectious diseases through infection control measures in health care settings; and
  - \* Provide support for infection control preparedness and response to public health emergencies of potential international concern.



Website of World Health Organization: <http://www.who.int/>

## Centers for Disease Control and Prevention (CDC)

In 1946, the Communicable Disease Center was established by the federal government in the US to work with state and local health officials in the fight against malaria, typhus and other communicable diseases. In 1970, the Communicable Disease Center was renamed the Center for Disease Control to reflect the wider scope of activities that had been developed over the years. In 1980, the Center for Disease Control was renamed the Centers for Disease Control to reflect its diverse organisational components. In 1992, the Centers for Disease Control added "Prevention" to its name to reflect a broader role and vision of the organisation. All this time, the abbreviation CDC has been used to represent the organisation.

CDC's policies on the prevention and control of infectious diseases focus on "emerging" infectious diseases in the US and around the world. Emerging infectious diseases are diseases of infectious origin whose incidence in human beings has increased within the past two decades or threatens to increase in the near future.

Emerging infectious diseases can be classified into newly emerging infectious diseases, such as Severe Acute Respiratory Syndrome (SARS) and re-emerging infectious diseases, such as malaria and cholera. Evolution of existing organisms and ecological changes are the primary factors contributing to the occurrence of newly emerging infectious diseases. The development of antimicrobial resistance in existing agents and breakdowns in public health measures for previously controlled infections are considered to be the main causes for the spread of re-emerging infectious diseases.

The CDC considers that building up epidemiology and laboratory capacity is essential to recognise, monitor and tackle infectious diseases since high epidemiology and laboratory capacity increases the chances of early detection of possible outbreaks and the development of effective diagnostic and treatment interventions. The end result will be the reduction of morbidity and mortality.



Website of Centers for Disease Control and Prevention  
<http://www.cdc.gov>

## 2. Local Organisations

### The Centre for Health Protection (CHP)

The Centre for Health Protection (CHP), established within the Department of Health on June 1, 2004, is vested with the responsibility and authority for the prevention and the control of communicable and non-communicable diseases. It is supported by six functional branches. They are:

- The Surveillance and Epidemiology Branch
- The Public Health Laboratory Services Branch
- The Public Health Services Branch
- The Infection Control Branch
- The Emergency Response and Information Branch:
- The Programme Management and Professional Development Branch

Disease control is one of the major tasks of the Surveillance and Epidemiology Branch, which:

- maintains a communicable diseases notification system,
- conducts detailed epidemiological investigations on disease outbreaks, and institutes appropriate control measures and health advice to stop disease propagation, and
- collects, collates, analyzes, and disseminates surveillance data on communicable diseases, develops and coordinates communicable disease surveillance system for the Pearl River Delta Region

(More information will be available in Part 6.6 in this Booklet)



Centre for Health Protection  
<http://www.cdp.gov.hk>

## 6.3 Non-Communicable Diseases

### (A) Global and Local Trends

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The patterns of health and illness in the world have changed a lot over the last century due to the advancement of biomedical technology and the implementation of public health strategies. Over the last century, the main killers in developed countries were infectious diseases such as poliomyelitis, smallpox, influenza and tuberculosis. However, nowadays, these are no longer the main killers and their place has largely been taken by the diseases caused by unhealthy lifestyle, especially the lack of leisure activities and exercise.

As pointed out by the World Health Organization, in the next two decades there will be dramatic changes and transitions in the world's health needs, as a result of epidemiological transition. At present, lifestyle and behaviour contribute to 20-25% of the global burden of disease. This proportion is rapidly increasing in poorer countries. In the developing regions, where four-fifths of world's population live, non-communicable diseases such as depression and heart diseases, as well as road traffic deaths, are fast replacing the traditional illness such as infectious diseases and malnutrition, as the leading causes of disability and premature death. By the year 2020, non-communicable diseases are expected to account for seven out of every ten deaths in the developing regions, compared with less than half today (WHO, 2008).

In Hong Kong, according to a report by the Department of Health in 2005, cancer, heart diseases and cerebrovascular diseases are the major killers nowadays. Findings from the Population Health Survey 2003/2004 (Department of Health, Hong Kong SAR, 2004) indicates that among the major chronic conditions, obesity and being overweight (38.8%), hypertension (12.1%), high blood cholesterol (8.4%), diabetes (3.8%) and asthma (1.9%) were the five prevalent conditions.

Many chronic diseases are related to personal lifestyle and environmental factors. However, effective health promotion helps prevent many chronic diseases and facilitates the rehabilitation of disabilities. Ageing does not necessarily lead to illness, infirmity or disability. In fact, over the decades, the health of the elderly in different countries has improved. The Organization for Economic Cooperation and Development estimated that by 2020, if the elderly adopt a healthy lifestyle, the disability among elderly people will be reduced.



## (B) Chronic Diseases

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The following is a brief introduction of five chronic illnesses:

### 1. Cancer

Cancer was the number one killer in Hong Kong, accounting for 31.8% of all registered deaths in 2005. The top five causes of cancer deaths were lung cancer, colorectal cancer, liver cancer, stomach cancer and breast cancer in 2005. There are over 200 types of cancer. Each cancer starts in the same way. It is linked to changes in the normal make-up of a cell, leading to the uncontrolled growth of abnormal cells. There are differing views as to why this occurs. For instance, stress, excessive smoking and intake of alcohol are viewed as predisposing factors. There are different methods of treating cancer which include chemotherapy, radiotherapy or surgery.

### 2. Heart diseases



According to the information provided by Department of Health in 2007, heart diseases have been the second leading cause of death in Hong Kong since the 1960s. "Heart Diseases" refers to a broad spectrum of diseases such as coronary heart disease, hypertensive heart disease, chronic rheumatic heart disease and congenital heart disease etc. In 2005, about 11 persons on average died from coronary heart disease per day. Moreover, more males died from coronary heart disease (male to female ratio = 1.2:1), but the gender gap narrowed with age.

### 3. Cerebrovascular diseases

In 2005, cerebrovascular diseases were the fourth leading cause of death in Hong Kong. This disease group caused a total of 3,434 deaths, i.e. 49.5 deaths per 100,000 population, with slightly more deaths in women (male to female ratio being about 1:1.06). About 88% of the cerebrovascular disease deaths occurred in people aged 65 years and above.

## 4. Diabetes mellitus

Diabetes mellitus is a condition in which the amount of glucose in the body cannot be properly controlled. Glucose comes from the digestion of starchy foods such as bread or potatoes and sugary foods, and from the liver. Glucose levels are controlled by insulin, a hormone produced in the pancreas which lowers such levels by converting glucose into glycogen which is then stored in the liver. The main symptoms of untreated diabetes are thirst, the passage of large amounts of urine, extreme tiredness, weight loss, genital itching and blurred vision. The aim of treatment is to restore near normal blood glucose levels. Together with a healthy lifestyle this will help improve well-being and protect against long-term damage to the eyes, kidneys, nerves, heart and major arteries. There are two different types of diabetes mellitus.

-  Type 1 is insulin-dependent diabetes. This develops when there has been a severe lack of insulin in the body because most of the pancreatic cells which manufacture insulin have been destroyed. This type of diabetes usually appears before the age of 40. The cause is not known but viruses may play a part. It is treated with insulin replacement and diet.
-  Type 2 develops when the body can still make some insulin, though not enough for its needs, or when the insulin that the body does make is not used properly. This type of diabetes is commonly found in the elderly and the overweight. The tendency to develop this form of diabetes may be passed from one generation to the next. It is usually treated by diet alone. It is estimated that between 75 per cent and 90 per cent of people with diabetes are Type 2 dependent.

## 5. Obesity

Obesity means the excessive deposit of fatty tissue in the subcutaneous region around the body. Obesity is caused by the consumption of an excessive amount of calories taken in the form of food and drink. Obesity is measured by body weight against body height, which calculates the body mass index (BMI). Generally speaking, the BMI between 25 and 30 means 'overweight' and over 30 means



Examples of Non-communicable Diseases  
Centre for Health Protection – Health Topics – Non-communicable  
Disease and Risk Factors  
<http://www.chp.gov.hk/>

## 6.4 Lifestyle Changes and Illnesses

'Lifestyle' generally means a pattern of individual practices and personal behavioural choices. It is a very broad concept encompassing a number of human activities. In addition to inherited vulnerability, many lifestyle factors are known to increase the risks of ill health. Since the mid-1970s, there has been a growing recognition of the significant contribution of personal behavioural choices to health risk. The choices and practices range from brushing one's teeth, eating, exercise, coping with stress, tobacco smoking, alcohol consumption, drug use, risk of accidents, and even sexual practices, etc.

### (A) Risk Factors and Protective Factors

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These choices and practices can protect and improve one's health or cause illnesses.

Behaviours or activities which are associated with or cause increased susceptibility to a specific disease, ill health or injury are the risk factors, such as drug abuse, inadequate exercise/ rest, unhealthy dietary habits, non-hygienic practices, harmful/ unsafe practice and a sedentary lifestyle.

Behaviours or activities which help protect and improve health such as exercise, rest, balanced diet, good hygiene, protective measures and universal precautions are called protective factors.

All these protective and risk factors are subsumed in one's lifestyle.

### (B) Lifestyle changes and communicable diseases

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#### 1. Hygiene practice

In general, good hygiene practice is the cornerstone to minimize infections. It includes food hygiene, environmental hygiene and personal hygiene such as hand-washing and mask wearing, etc.

Most scientists widely agree that microorganisms are spread by causal contact, food and water contamination, insects and even healthy human carriers (in cases of Tuberculosis) so that communicable diseases are caused. This idea leads to an expansion of Hong Kong Government's public health initiatives such as water purification, food inspection, rodent control as well as more awareness of individual hygiene measures such as covering a cough or washing hands before eating, etc.

However, these kinds of hygiene practice seem to be carried out by the public only during episodes of infection. For example, during the period of SARS, people's lifestyle changed. More people engaged in activities aimed at building up a stronger body and minimizing transmission such as eating for better nutrition, proper sanitation, wearing masks and thorough hand-washing. During this period, people put all effort into maintaining good hygiene practice. As a consequence, not only could we combat the disaster due to SARS, but we also achieved a decline rate of other infectious diseases such as influenza and food poisoning. However, a few years after the SARS outbreak, hygiene practices have sloped downwards.

Besides, there is an increasing trend in the incidence of food poisoning in Hong Kong after the highly alert peak period of SARS. Thorough hand-washing and food safety no longer seem to be regular practices. From 2003 to 2006, the confirmed cases of food poisoning caused by bacteria increased from 333 to 838 with affected people increasing from 1,851 to 3,219. Amongst food poisoning caused by viruses, the number of confirmed cases increased from 57 to 183 with affected people increasing from 267 to 768 in the same period of time (Department of Health, Hong Kong SAR, 2007).

In all, hygiene practices help prevent the outbreaks of communicable diseases. The observance of good personal, food and environmental hygiene is always the key to protecting oneself against infectious diseases. In other words, the lack of good hygiene practices may lead to outbreaks of communicable diseases.

## 2. Changing Attitudes towards Sex and Sexual Behaviours

### Sexually transmitted diseases

Sexually transmitted diseases (STDs) are serious as they can affect the genital organ and cause pain and sterility. It can even spread to other organs and cause complications or even death. Offspring of the STD patient may be affected as well. Common STDs include Syphilis, Gonorrhoea, Non-Gonococcal Urethritis, Non-Specific Genital Infection, Genital Warts, Trichomoniasis, Pubic Lice and Herpes Simplex type II infection. Sexual contact is the commonest mode of transmission of HIV infection in Hong Kong. STDs are transmitted through sexual intercourse with an infected sex partner. It can be transmitted through vaginal sex, oral sex and anal sex, but not through social contact like eating at the same table, travelling in the same public vehicle or swimming in the same pool, etc.

Sexually transmitted infections vary in terms of latent period. They are not easily noticed as the symptoms may not be obvious. Infected patients, in particular female ones may show no symptoms at all. Damaged spots in the sex organ, small growths, blisters, itchininess, frequent urination, stabbing pain in the genital organ, excretion of white condensed urethral discharge in males and excretion of greenish-yellow vaginal discharge in females may be symptoms of infection. The patient should seek treatment as soon as possible to alleviate pain and avoid complications.

The lifestyle factors include the attitudes towards sex and sexual behaviours which may cause infection and transmission of STDs. The most effective way of preventing STD is to have safer sex and maintain a mutually monogamous relationship with an uninfected partner and avoid casual sex. If this is impossible, condoms should be used properly during each sexual contact to reduce the chance of infection. People active in sex should receive regular check ups in order to ensure that they have not contracted an STD.

In Hong Kong, the cross-border activities and attitudes of the youth towards sex are the two main factors contributing to STDs.

Unsafe or unprotected sexual behaviour contributes to the problems of HIV, STDs, unintended pregnancy and abortion, infertility and cancer, resulting from STDs, and sexual dysfunction. The prevalence of high risk sexual behaviour, in particular engagement in commercial sex, is high among the male population, and especially so with cross-border travellers. The high volume of cross-border traffic between Hong Kong and the Mainland, coupled with the sizeable proportion of the male population who engage in high-risk sex behaviour is a major risk factor for an increase in HIV infection in Hong Kong.

The attitude towards sex of many people in Hong Kong is strongly influenced by the media such as television, film and advertisements. There are an increasing proportion of youths who accept premarital sex and have sexual experiences. Some of them even have multiple sexual partners. However, the rise in sexual activities among the youths are not matched by an increase in their awareness of sex related health risks or knowledge about different sexually transmitted diseases.



Centre for Health Protection – Health Topics – Communicable Disease – Sexually Transmitted Infections : <http://www.chp.gov.hk/>

## (C) Lifestyle changes and non-communicable diseases

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Lifestyle also plays an important role in non-communicable diseases.

### 1. Lifestyles under Modernization – the decrease in energy expenditure

Under modernisation and other societal changes, sedentary lifestyles lead to a decline in energy expenditure. The sedentary lifestyle is caused by the motorised transport, mechanised equipment, and labour-saving devices both in the home and at work which have freed people from physically arduous tasks. Work related activities have declined over recent decades in industrialized countries, while leisure time is mostly dominated by television watching and other physically inactive habits. Changes in social structures have also led to an increasing proportion of the population working in service, clerical and other professional occupations that demand considerably less energy expenditure than the physically demanding manual work of more traditional societies.

The reduction in 'energy expenditure' is also a result of the advance in technology. Sitting for a long time watching television, playing video games, surfing the internet; decrease in the number of jobs requiring physical labour, more reliance on labour saving electrical appliances in household and other settings, less physical activities in schools are examples that contribute to the above reduction.

### 2. Dietary practice and physical activity

The incidence of overweight people has seen a corresponding increase in obesity-related diseases and disorders such as diabetes, gall stones, hypertension, heart diseases, stroke, cancers of breast, and colon and osteoarthritis diseases during the last quarter of the 20<sup>th</sup> Century. Being overweight during childhood and adolescence may lead to being overweight or obese during adulthood.

The consequence of this change of lifestyle with less exercise and more physically inactive pastimes is greatly associated with cases of being overweight and obese. It results in a large proportion of morbidity and mortality due to diseases such as heart disease, diabetes, cancer, and cerebrovascular disease (stroke) which are now the major killers in much of the world. Regular physical activity contributes to overall health and well-being. Specific physical benefits of exercise include the utilisation of calories, reduction in body fat, improved cardiovascular status, lowered blood pressure, and decreased risk of developing diabetes, osteoporosis, and certain forms of cancers.

As many researchers conclude, “abnormal lipids, lack of leisure activities and lack of exercise account for most of the risk of myocardial infarction worldwide in both sexes and at all ages in all regions”. Regular exercise, leisure activities and healthy diet are essential in preventing health problems such as heart attack, stroke, obesity and hypertension.

What is the driving force behind the obesity epidemic? Although biological factors contribute to individual differences in height and weight, the rapid weight gain over the past 20-30 years is primarily the result of social changes. The availability of a wide variety of tasty, inexpensive, energy rich food served in large portions is a major contributor to the problem.

The Department of Health, Hong Kong SAR reported that food intake by the Hong Kong population increased from 567 kg per person per year in 1971 to 678 kg per person per year in 1997. Unless people are much more physically active, the increase in food consumption will certainly lead to energy imbalance and increase in body weight.

### 3. Cigarette smoking

Smoking is the single largest preventable cause of disease and premature death. It is a prime factor in heart disease, stroke and chronic lung diseases. It not only causes cancer of the lungs but is also associated with cancer of the larynx, oesophagus, mouth, bladder, cervix, pancreas, kidneys and even colon tumors. It is also a contributor to pregnancy associated disorders.

According to the WHO 2002 statistical report, about 76% of men and 4% of women in China were smokers. Among the youth in the mainland, about a third of male teens smoke with nearly 8% of them are female. It is reported that one of every three cigarettes consumed worldwide is smoked in China. Smoking contributes to four of the five leading causes of death in China today. About 3,000 people die of smoking in China everyday. China used to shut her door to multi-national tobacco companies. But in the last two decades, with the opening up of the Chinese economy, multinational companies have been aggressively competing to get a slice of the Chinese market. Through advertising, cigarette firms try to promote smoking by associating it with athletic prowess, sexual attractiveness, success, mature personality, adventure and self-fulfillment.



In Hong Kong, tobacco companies spent an estimated \$63 million on all forms of advertising and promotion in 1995. According to the statistical report from Department of Health of the Hong Kong SAR in 2006, 15.3% of the population in the survey were daily smokers. There is also an increasing trend of female smokers especially amongst the youth.

Exposure to second hand smoke has been associated with an increase of acute and chronic diseases among non-smokers. The diseases include lung cancer, asthma, and respiratory infections. Children are the sufferers of exposure to second hand smoke at home. It also affects adults. Smoke exposure among workers who never smoke has a significant increase in serious health disorders associated with exposure to second hand smoke at work.

#### 4. Alcohol consumption

According to the Hong Kong Population Health Profile Series of the Department of Health in 2004, among Hong Kong people aged 15 and above, 9.5% of them were regular drinkers who drank at least once a week. The proportion among males was much higher than that among females. Males were more likely to have engaged in binge drinking. However, other surveys also showed that female drinking was increasing. It implied that there was a tendency for more females to engage in alcohol consumption. The surveys conducted by the Department of Health in 2004 and 2006 also indicated that the consumption of alcohol exceeding low risk levels increased from 23.3% in 2004 to 29.2% in 2006.

Although some research found that moderate alcohol consumption – one to two standard drinks per day – may have some positive impacts on health, overuse and abuse of alcohol will undoubtedly have major negative impacts. Excessive alcohol consumption has detrimental effects on the tissue in the body resulting in liver, kidney and brain damage. It also contributes to certain cancers such as oral cancer, throat cancer, esophageal cancer, colon cancer and rectal cancer and other cancers.



## 6.5 Disease Prevention

There are three levels of disease prevention.

The first level is **primary prevention**. It refers to the healthcare activities that aim at avoiding the development of a disease or injury. Most population-based health promotion and disease prevention activities such as public education to minimize falls and vaccinations are primary preventive measures.

The second level is **secondary prevention**. It refers to the healthcare activities that aim at early detection of diseases, thereby increasing opportunities for intervention to prevent the progression of the disease. Secondary preventive measures include health check-ups (e.g. blood pressure assessment) and disease screening, such as Pap smears (a test to screen for cervical cancer), followed by necessary interventions after making the diagnosis.

The third level is **tertiary prevention**. This refers to the proper rehabilitation of patients with an established disease to minimize residual disabilities and complications. Action taken at this stage aims at improving the quality of life, even if the disease itself cannot be cured.

### (A) Primary Prevention

**Primary prevention** refers to the healthcare activities that aim at avoiding the development of a disease or injury. The following are examples of the primary prevention of communicable and non-communicable diseases:

#### 1. Prevention of Communicable Diseases

##### Individual Level

To prevent communicable diseases, personal hygiene practices, like washing hands and wearing surgical masks, are very important. It is everyone's responsibility in preventing communicable diseases.

##### ➤ Hand hygiene

Many communicable diseases can be transmitted through direct contact. If hands are contaminated with pathogens, communicable diseases such as hand, foot and mouth disease, influenza, dysentery, hepatitis, etc., can be spread easily. In general, correct hand washing practice and proper use of alcohol-based hand rub are the two methods to achieve hand hygiene.



#### Reference on Hand Hygiene:

Centre for Health Protection: <http://www.chp.gov.hk/>

Title: Guidelines for Hand Hygiene

Path: Home > Feature topics > Guidelines > General Public

#### ➤ Wearing surgical mask

Surgical masks, if properly worn and disposed of, are effective in preventing the spread of respiratory tract infections through droplets. Individuals with respiratory infection symptoms, caregivers of patients with respiratory infection symptoms and visitors to clinics or hospitals should wear a mask to lower the chance of spreading respiratory infectious diseases.



#### Reference on Wearing Masks:

Centre for Health Protection: <http://www.chp.gov.hk/>

Title: Use Masks Properly

Path: Home > Feature topics > Guidelines > General Public

### **Community Level**

#### ➤ Universal precautions

According to the concept of universal precautions, an individual should treat all human blood and certain body fluids as if they are known to contain bloodborne pathogens. Bloodborne pathogens are disease-carrying microorganisms that may be present in human blood. They may be transmitted with any exposure to blood. Two pathogens of significance are the Hepatitis B Virus (HBV) and Human Immunodeficiency Virus (HIV). A number of bloodborne diseases other than HIV and HBV exist, such as Hepatitis C, Hepatitis D and syphilis. To minimize exposure to bloodborne diseases, universal precautions are used for infection control.

The examples of body fluids include:

- \* Semen
- \* Vaginal secretions
- \* Cerebrospinal fluid
- \* Pleural fluid
- \* Any body fluid with visible blood
- \* Any unidentifiable body fluid
- \* Saliva from dental procedures

Therefore personal protective equipment such as gloves, waterproof aprons, gowns, face shields are necessary for any one exposed to the above potentially infectious materials. Besides, hand washing with soap and water is particularly important for contact with body fluids or wounds.

➤ Health Education

The Central Health Education Unit of the Department of Health is one of the institutions that plays a leading role in formulating the direction on, and providing resources for, public health education. It provides information and education for the prevention of communicable diseases to the public.



Reference on “Guidelines on Prevention of Communicable Diseases in Child Care Centres / Kindergartens / Schools”:

<http://www.chp.gov.hk/files/pdf/Guid-Booklet-eng.pdf>

## 2. Prevention of Non-Communicable Diseases

### Regular exercise

Lack of exercise is one of the risk factors for heart diseases, cerebrovascular diseases, diabetes mellitus, hypertension and obesity. Taking regular aerobic exercise for 30 minutes on most days of the week is good for health and reduces the risk of the above mentioned diseases.

Regular aerobic exercise improves cardio-pulmonary function and reduces the risk of developing many chronic diseases. It helps maintain body weight and healthy bones, muscles and joints. It also helps to decrease bone loss and prevent osteoporosis in menopausal women. In addition, regular exercise promotes psychological well-being and reduces stress, depression as well as anxiety.

### Recreation and rest

Recreation refers to refreshment, restoration or recovery. In general, it carries the idea of purpose, usually restoration of the body, mind or spirit. The benefits of recreation include (1) producing feelings of relaxation or excitement and (2) enhancing self-reliance, mental health, and life-satisfaction. Societal benefits also result from recreation. Recreation contributes to public health, increased community involvement and social unity.

Adequate rest helps to maintain good health. The quality of rest is as important as the amount of rest. Quality sleep at night enables the body to regain strength and energy. Lack of quality rest results in poor mental condition and may directly or indirectly lead to the occurrence of some accidents. The amount of rest an individual needs each night depends upon his/her particular body mechanism. It varies from an average of six to ten hours of sleep per night.

## Diet

Food is the source of energy and nutrients that are essential for life. Human activities are supported by energy generated from food. Numerous research has proved that nutrients are important for growth, repair, health maintenance as well as disease prevention.

Recently, there has been a realization that dietary factors are of importance in many chronic degenerative diseases that are major causes of ill health and death in affluent societies. A balanced healthy diet means different things to different people. Those concerned with children's nutrition aim to promote healthy growth and development. For adults in affluent communities, it focuses on how to attain optimal health, as well as prevent or mostly delay chronic degenerative diseases of complex causation, especially obesity, cardiovascular diseases, cancers and diabetes. Though chronic degenerative diseases, like coronary heart disease, have multiple causes, diet contributes to disease prevention. An imbalanced diet leads to specific nutrient deficiency. Diets with high fat, high salt and high sugar but low roughage and low calcium also increase the risk of various health problems, such as heart disease, cerebrovascular disease, diabetes mellitus, hypertension, some cancers and osteoporosis in menopausal women.

A balanced diet should include a variety of foods that provide different types of nutrients and appropriate calories. Most important is that the energy intake varies according to different ages, height, body weight and level of physical activity. It is well known that carbohydrates, protein, fat, minerals, vitamins and dietary fibre are essential nutrients. However, it is worth noting that in the concept of disease prevention, the intake of all essential nutrients should be within proper limits. For example, no more than 30% of daily energy intake should come from fat, no more than 10% of daily energy intake should come from saturated fat, no more than 300mg of cholesterol intake per day and no more than 6g of salt should be consumed per day. Besides, to prevent chronic diseases such as heart diseases, hypertension, cerebrovascular diseases, diabetes and certain cancers, adequate intake of fruit and vegetables plays an essential role in healthy eating.

More information on diet and nutrition is available in Booklet (1) and (3).



For further information on healthy diet, please refer to:

<http://www.eatsmart.gov.hk/>

<http://www.eatsmart.gov.hk/>

<http://2plus3.cheu.gov.hk/>



For further information on daily energy consumption and information on composition and nutritional value of commonly consumed foods, please refer to the “Nutrient Information Inquiry System” from Centre for Food Safety:

<http://www.cfs.gov.hk/english/nutrient/index.shtml>



For further information on balance diet, refer to:

<http://www.mypyramid.gov/>

## (B) Secondary Prevention

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**Secondary prevention** focuses on early detection of diseases. It aims at reducing disease risk by appropriate immunizations and regular health checks. Secondary prevention includes: (1) health checks, such as: measuring blood pressure; (2) screening, for example: cervical pap smears (cervical cancer screening method), and (3) timely intervention after diagnosis.

In order to minimize the risk of diseases, besides receiving appropriate immunisation, developing a healthy lifestyle and getting rid of high risk behaviours, it is also important to have regular health checks or examinations. Problems can be found before they start affecting our well-being and the chances for treatment and cure will be better. By getting appropriate health services, individuals are taking steps that help them to have chances for living a longer and healthier life. However, it should be noted that there are no universal rules for supreme health check regimens. Different countries have different task forces for recommendations on regular health checks. In Hong Kong, regular health checks for children according to their needs at various stages of development are recommended and provided by the Department of Health.



Other recommendations for specific diseases can also be found from the Department of Community and Family Medicine, the Chinese University of Hong Kong :  
[http://www.csu.med.cuhk.edu.hk/~dfm/p\\_guideline/](http://www.csu.med.cuhk.edu.hk/~dfm/p_guideline/)

Attention should be paid that these are guidelines for primary health care providers. Individuals should consult their own family doctors according to individual differences if necessary.

## (C) Tertiary Prevention

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**Tertiary prevention** refers to the proper rehabilitation of patients with an established disease to minimize residual disabilities and complications. It is the control and reduction (as far as possible) of an already established disease. It is not easily distinguishable from medical care, but it is possible to consider tertiary prevention as issues such as increasing the capacity of individuals to manage their condition and their own health. An example is to support and enable people with a history of heart attacks to regain their confidence by enabling them to live a more fulfilling life and be in control of their own destiny, as far as is possible. It could also apply to someone suffering from Parkinson's disease being supported in learning about and managing his or her condition as independently as possible. A more common and less obvious example might be the provision of dentures to people who have had teeth extracted.

Other tertiary prevention services include:

- ❖ medical social services for chronic patients and persons with mental health disabilities; and
- ❖ rehabilitation services for the disabled and elderly.

## 6.6 Government Strategies in Disease Prevention

### (A) The Policy

#### 1. In Response to Medical and Health Issues

In response to the outbreak of disease such as SARS in 2003, the health and social policy was reviewed and renewed. Before that disastrous infection, there was no policy on any alert and response for combating any outbreak of disease. After the outbreak of SARS, new policies on preventing and combating SARS and even Avian Flu were put in place. Before the outbreak of SARS, citizens could visit hospitalized patients with great flexibility, even without regulations for visiting hours. But now, strict visiting hours are implemented. Three tiers of response (Green Alert, Yellow Alert, Red Alert) are posted all the time to provide information to the public for prevention of infectious diseases. New infection control and management policies for hospitals, clinics, schools, kindergartens, old-age homes, etc are effective in response to SARS since 2003. The following are some related websites:



Hospital Authority Alert Mechanism for Influenza Pandemic  
[http://www3.ha.org.hk/aflu/alert\\_mechanism.asp](http://www3.ha.org.hk/aflu/alert_mechanism.asp)



Fight against Pandemic  
<http://www.gov.hk/tc/theme/fightpandemic/index.htm>

#### 2. Long-term Planning

In the 'Lifelong Investment in Health' Consultation Document on Health Care Reform prepared by the former Health and Welfare Bureau in 2000, one of the strategic directions of the government to achieve the objectives of health care reform is to strengthen the amount of preventive care. In disease prevention, one key role of government is to provide the necessary information, encouragement and infrastructure to enable people to control and improve their health. This infrastructure includes not only the structure and processes for health promotion and patient education but also the knowledge and understanding of the impact of socio-economic decisions to public health. The government is responsible for overseeing the development of preventive care, identifying and assessing the impact of social and environmental variables to health, protecting health through legislation and regulation, providing services ranging from disease surveillance and prevention, health education and promotion, to immunisation and health screening.



The 'Lifelong Investment in Health' Consultation Document on Health Care Reform states that in the future our healthcare system will feature a robust primary care system at its foundation –

- ✍ A population which is knowledgeable about health and health risk factors, where the general public can and will adopt a healthy lifestyle, and take responsibility for their own health; and a healthcare profession that views health promotion and preventive medicine as priorities, and exercises its practice professionally and ethically.
- ✍ A primary medical care system that can provide a good family and community medicine service affordable to all whilst incorporating strong elements of health promotion and preventive care, with standards set for the care of different age groups and health status.

To promote primary care and especially preventive care, the reform proposes to develop in conjunction with the medical profession basic models of primary care services for different age/gender groups. The basic models, with emphasis on preventive care, will aim at providing the public as well as the healthcare professions a reference on what a comprehensive range of primary care services should cover. Through developing and promoting the basic models among the public and healthcare providers, coupled with other reforms to the service delivery model for primary care, the government hopes to bring about a paradigm shift that would put a much greater emphasis on preventive care. The principles of the basic models are:

Life-course approach	The models should cover every stage during the lifespan from first born to old age, and devise appropriate primary care services including preventive care for each stage of life.
Holistic health	The models should take into account not only physical health, but also psychosocial, emotional, behavioural, developmental and functional health.
Essential:	The models should include services essential not only for prolonging life but also for functional independence, with the aim of attaining optimal health outcomes and ensuring a healthy life with quality.
Evidence-based	Services included in the models should be based on empirical evidence (local and / or international data) on their efficacy, efficiency and cost-effectiveness.
Need- and risk-based	Services in the models should be provided based on professional assessment of need, having regard to risks and intervention, including the fact that screening tests must be preceded by assessment.



Life Long Investment in Health

[http://www.fhb.gov.hk/en/press\\_and\\_publications/consultation/HCR1.HTM](http://www.fhb.gov.hk/en/press_and_publications/consultation/HCR1.HTM)



Your Health Your Life

<http://www.fhb.gov.hk/beStrong/cmain.html>

More details on healthcare reform are available in Booklet (10).

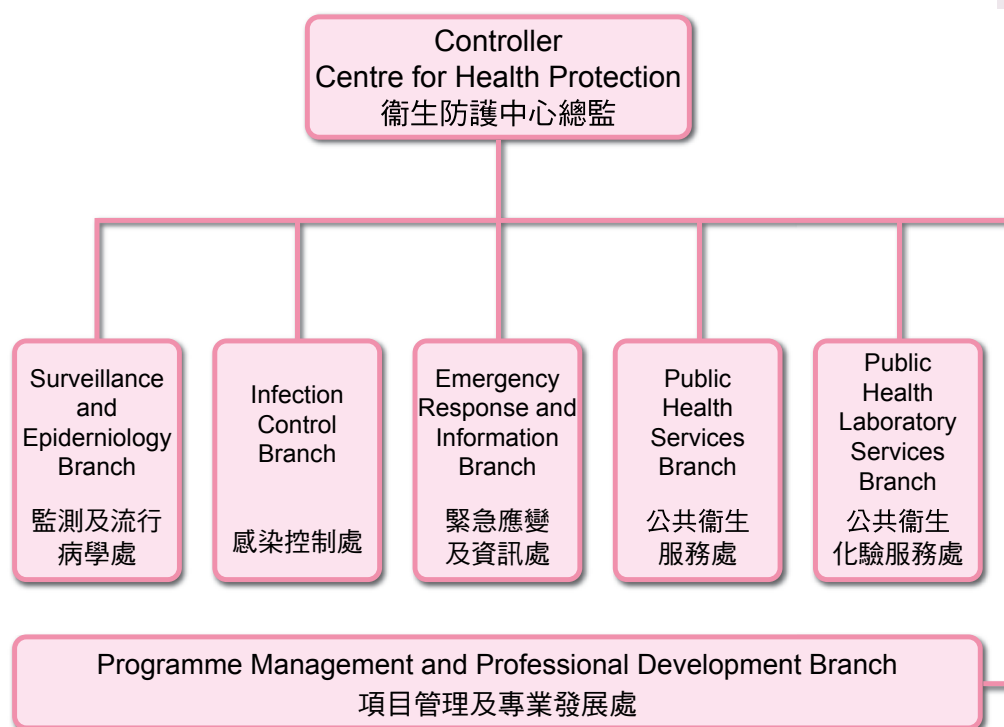
## (B) Centre for Health Protection

The Centre for Health Protection (CHP) of the Department of Health is set up to strengthen the public health system in diseases prevention.

The CHP keeps the community abreast of health risks by means of territory wide publicity and public education campaigns. The CHP also communicates with different sectors of the community including the District Councils, Non-government Organisations, professional association in order to have better public health promotion.

The CHP has built up their website to share knowledge and developments in public health protection. Apart from facts, guidelines and other relevant information have also been included, as well as linked to a wide range of agencies and resources. It aims to bring health matters closer to the community in order to increase public awareness and enhance knowledge in disease prevention and control.

### 1. Organisation of Centre for Health Protection



Centre for Health Protection - <http://www.chp.gov.hk>

Underpinned by six Service Heads, the Controller leads CHP in its guard for public health. There are six functional branches of CHP:

- ✎ **Emergency Response and Information Branch, which:**
  - Facilitates emergency preparedness and management of public health crisis, including development and updating of contingency plans as well as planning and co-ordinating exercises and drills;
  - Formulates risk communication strategies; and
  - Co-ordinates the formulation of CHP's objectives and strategies.
  
- ✎ **Infection Control Branch, which:**
  - Develops, promulgates and evaluates best practices in infection control in healthcare and non-healthcare settings;
  - Co-ordinates, facilitates and supports training in infection control for all levels of healthcare workers;
  - Supports epidemiological investigation of nosocomial infections in hospitals; and
  - Conducts surveillance on infection hazards in healthcare and non-healthcare setting.
  
- ✎ **Programme Management and Professional Development Branch, which:**
  - Co-ordinates and organizes training activities for medical and nursing professionals of the CHP, Hospital Authority (HA) and other institutions;
  - Liaises with local and international institutions to arrange attachment and exchange programmes;
  - Co-ordinates research studies, including research projects in collaboration with universities, HA and other government departments;
  - Provides secretarial support to various Scientific Committees; and
  - Undertakes health promotion activities.
  
- ✎ **Public Health Laboratory Services Branch, which:**
  - Provides laboratory diagnostic services for surveillance, control and prevention of diseases;
  - Provides consultative services relating to various disciplines of pathology;
  - Provides laboratory support on outbreak investigation;
  - Conducts quality assurance programmes for continuous improvement of standards of laboratories in Hong Kong; and
  - Provides confirmatory service and technology transfer/ training for laboratory personnel as a Reference Laboratory.

 **Public Health Services Branch, which:**

- Supports the prevention and control of TB, HIV/AIDS and STI; and
- Provides specialized treatment and care services for patients infected with TB, HIV/AIDS and STI.

 **Surveillance and Epidemiology Branch, which:**

- Manages and responds to communicable disease outbreaks and develops control measures;
- Monitors, and issues alerts as appropriate, maps the changing epidemiology of communicable diseases of local and regional importance through operation and ongoing enhancement of a series of surveillance systems;
- Masterminds a surveillance system for Guangdong-Hong Kong-Macao and focuses on the situation of communicable diseases in the Pearl River Delta (PRD) Region; and
- Conducts surveillance and control of non-communicable diseases of public health significance.

## 2. Diseases prevention and surveillance

The commitment of the Centre for Health to public health protection can be summed up in “3R”- real time surveillance, rapid intervention and responsive risk communication.

### Real time surveillance

This refers to an efficient appraisal of disease burden and early recognition of unusual patterns of disease in order to act promptly to prevent and control disease spread.

Objective: To further strengthen the infectious disease surveillance system and network	
1. Enhance surveillance on infectious diseases	<ul style="list-style-type: none"> <li>✧ Monitor infectious disease trends in the region.</li> <li>✧ Enhance the functions of the sentinel surveillance systems in detecting community epidemics by putting in place an electronic platform linking sentinel sites and the CHP.</li> <li>✧ Enhance effectiveness of outbreak detection by incorporating computerized aberration detection methods into the monitoring of infectious disease activities.</li> </ul>
2. Enhance surveillance on TB, HIV/ AIDS and STI	<ul style="list-style-type: none"> <li>✧ Monitor TB and collate statistics for surveillance.</li> <li>✧ Maintain a register on TB/HIV co-infection.</li> <li>✧ Further enhance HIV surveillance in the PRD Region.</li> <li>✧ Develop practicable surveillance methodology for better monitoring of STI.</li> <li>✧ Enhance STI partner notification monitoring system.</li> </ul>
3. Enhance surveillance on healthcare associated infections	<ul style="list-style-type: none"> <li>✧ Monitor nosocomial infections and antibiotics resistance and usage in public hospitals for early intervention.</li> <li>✧ Standardize the sharps injury reporting systems for DH clinics.</li> </ul>
4. Enhance laboratory surveillance	<ul style="list-style-type: none"> <li>✧ Identify areas of public health importance for enhancing laboratory surveillance.</li> <li>✧ Monitor laboratory surveillance data for unusual infections or trends.</li> </ul>

 **Rapid intervention**

This refers to the prompt and effective investigation into outbreaks, so that appropriate control measures can be implemented at the earliest possible time.

**Objective: To further enhance the preparedness for public health emergencies**

<p>1. Develop and regularly review contingency plans</p>	<p>✧ Contingency plans to be developed and put in place in time for major public health emergencies and kept under constant review.</p>
<p>2. Conduct regular exercises and drills to test emergency preparedness</p>	<p>✧ Exercises and drills to be conducted annually to review various aspects of the preparedness for major public health emergencies.</p>

**Objective: To contain outbreaks of infectious diseases effectively**

<p>1. Activate the emergency response mechanism</p>	<p>✧ Activate the Emergency Response Centre, Outbreak Intelligence Centre, Emergency Hotline Centre and Risk Communication Centre.</p>
<p>2. Improve quality of disease investigation</p>	<p>✧ Continuously update protocols for infectious disease investigation and control, taking into account the latest scientific practice.</p>
<p>3. Build up a workforce of specialized field epidemiology expertise to improve capacity to deal with complex infectious disease outbreaks</p>	<p>✧ Two specialized infectious disease investigations to be conducted under the Field Epidemiology Training Programme annually.</p>
<p>4. Enhance diagnostic laboratory services in support of infection control measures</p>	<p>✧ Identify areas of need for rapid diagnosis of microorganism of infection control concern.</p>
<p>5. Reduce the incidence of infection in different healthcare settings</p>	<p>✧ Conduct infection control audit to evaluate infection control practices at different healthcare settings; ✧ Evaluate the use of safety devices to reduce venepuncture-related sharps injury.</p>
<p>6. Refine and implement strategic public health measures for hepatitis B control and measles elimination in line with WPRO's target for achievement by 2012</p>	

 **Responsive risk communication**

This refers to the responsiveness to impending disease threats, typified by the issue of timely alerts and orderly dissemination of credible information on disease risks, in order that various sectors of the community can take precautionary measures as early as possible.

<b>Objective: To raise stakeholders' awareness of and preparedness for public health threats</b>	
1. Enhance risk communication with the public	<ul style="list-style-type: none"><li>✧ Launch risk communication campaigns on diseases</li><li>✧ Enhance the public's understanding of Diseases Provide timely and consistent information and messages during major public health emergencies</li></ul>
2. Enhance risk communication with partners and other interested parties	<ul style="list-style-type: none"><li>✧ Disseminate surveillance data of public health significance to relevant partners</li><li>✧ Develop and review infection control guidelines and manuals for use at different healthcare settings</li><li>✧ Promote hand hygiene at healthcare settings and elderly homes</li></ul>



## Objective: To provide high quality and professional public health protection services

### 1. Develop training programmes to meet specific capacity needs

- ✧ Develop e-learning programmes on infection control and infectious disease management.
- ✧ Provide training on infection control practices to enhance occupational health and safety of healthcare workers.
- ✧ Organize forums on infection control and infectious diseases.
- ✧ Identify areas of need for training and establishing programmes on quality assurance.
- ✧ Provide training on public health and clinical HIV medicine for healthcare professionals in the region and Hong Kong.
- ✧ Promote professional development and collaboration.

### 2. Conduct research studies

- ✧ Conduct cohort studies of people living with HIV/AIDS.
- ✧ Strengthen research capability in clinical management of STI and skin diseases.
- ✧ Conduct research study on the best sequence of de-gowning of personal protective equipment (PPE).
- ✧ Coordinate applied research under the Research Fund for Control of Infectious Diseases of the Research Council.
- ✧ Conduct a research study on hand hygiene at nursing homes.

### 3. Prevention and Control of Non-communicable Diseases

Promoting Health in Hong Kong: A Strategic Framework for Prevention and Control of Non-communicable Diseases (NCD) has been developed by the Department of Health for the prevention and control of NCD.

The goals of this NCD strategic framework are 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.

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

Direction	Key Actions
1. Support new and strengthen existing health promotion and NCD prevention initiatives or activities that are in line with this strategy	<ul style="list-style-type: none"> <li>✧ Fostering implementation of territory-wide health promotion programmes such as "healthy eating", "active living" and "tackling the issue of being overweight";</li> <li>✧ Mobilising resources and providing support for key NGOs in health promotion and NCD prevention; and</li> <li>✧ 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.</li> </ul>

Direction	Key Actions
<p>2. Generate an effective information base and system to guide actions across the disease pathway</p>	<ul style="list-style-type: none"> <li>✧ Building on existing knowledge management systems to ensure that evidence and information will be readily available to promote best practices among the healthcare providers.</li> <li>✧ Developing a systematic health information dissemination strategy to further empower individuals with health knowledge.</li> <li>✧ Improving surveillance of NCD and track changes in the risk profile and health determinants of the population.</li> <li>✧ Supporting sound research on issues relating to health promotion and NCD prevention policies.</li> </ul>
<p>3. Strengthen partnership and foster engagement of all relevant stakeholders</p>	<ul style="list-style-type: none"> <li>✧ Fostering public-private partnerships, engaging the civil society and networking all stakeholders to identify opportunities for collaboration.</li> <li>✧ Involving and engaging all levels of the Government, local communities and the public to create an environment conducive to the promotion of healthy behaviours.</li> <li>✧ Forming specific working groups to advise on priority actions required in specific areas of prevention, and also providing strategic governance.</li> <li>✧ Adopting the setting approach to schools, workplaces, hospitals etc. and also promoting healthy cities.</li> </ul>
<p>4. Build the capacity and capability to combat NCD</p>	<ul style="list-style-type: none"> <li>✧ Ensuring all healthcare workers will receive training on the principles of NCD prevention, with capacity to prevent, detect and treat them.</li> <li>✧ Using research and evaluation to drive evidence-based practice.</li> <li>✧ Developing health literacy in the general public with appropriate information and tools.</li> </ul>

Direction	Key Actions
<p>5. Ensure a health sector that is responsive to the NCD challenges and improve the system of care</p>	<ul style="list-style-type: none"> <li>✧ Strengthening the role of health promotion and disease prevention in the healthcare system.</li> <li>✧ Developing, implementing and monitoring evidence-based guidelines for effective management of major NCD, as well as monitoring their usage.</li> <li>✧ Encouraging healthcare professionals to identify and address the risk factors of NCD, engaging early intervention through appropriate screening and counselling, and supporting patients for self-management.</li> <li>✧ Establishing a framework of targets and performance measures to take forward this strategy, overseeing its implementation, tracking progress and evaluating performance.</li> </ul>
<p>6. Strengthen and develop supportive health promoting legislation</p>	<ul style="list-style-type: none"> <li>✧ 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.</li> </ul>

## 4. Data for Health Maintenance

### Health data

The Department of Health provides statistics on health status and disease surveillance of the local population. Data sources include registration of vital events, statutory notifications of infectious diseases, sentinel surveillance systems, population health surveys and other studies. The collection and application of data in health protection is divided into three categories:

- Statistics on communicable diseases
- Statistics on behavioural risk factors
- Vital statistics



For further information, refer to:

[http://www.dh.gov.hk/english/statistics/statistics\\_hs/statistics\\_hs.html](http://www.dh.gov.hk/english/statistics/statistics_hs/statistics_hs.html)

### Population health data

The population health data incorporates a variety of data types. The most common statistics reported are vital (birth, death, marriage, divorce rates), morbidity (incidence of disease in a population) and mortality (the number of people who die of a certain disease compared with the total number of people). Other common statistical data reported are health care costs, the demographic distribution of disease based on geographic, ethnic, and gender variables, and data on the socioeconomic status and education of health care professionals.

The information of population allows trends in health to be mapped over time (health surveillance) and actions to be taken as a result. Emerging health problems may be identified early enough for new and effective interventions to be implemented. For example, trends in chronic diseases from the population health data associated with unhealthy eating habits in the population allowing targeted health promotion programs such as the 'EatSmart@school.hk' Campaign launched in the 2006-2007 academic year and the 'EatSmart @restaurant. hk' Campaign launched in the 2007 initiated to improve the health of the population.

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# Learning and Teaching References

- 1** Personal Needs and Development across Lifespan
- 2** Health and Well-being
- 3** Physical Well-being – Healthy Body
- 4** Mental Well-being – Healthy Mind
- 5** Social Well-being – Inter-personal Relationship
- 6** **Healthy Community**
- 7** Caring Community
- 8** Ecology and Health
- 9** Building a Healthy City
- 10** Healthcare System
- 11** Social Welfare System
- 12** Medical and Social Care Professions
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- 15A** Health and Social Care Issue – Ageing Population
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- 15D** Health and Social Care Issue – Addiction
- 15E** Health and Social Care Issue – Poverty