

*Liberal Studies
Curriculum Resources
Booklet Series*

Public Health



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Contents

Preamble	1
Part I: Learning and Teaching Focuses	4
Part II: Basic Concepts and Relevant Information	17
A. Basic Concepts	
● Health	18
● Infectious diseases and epidemics	20
● Non-infectious diseases	22
● Public health	23
● Scientific development and public Health	24
● Disease diagnosis and treatment	26
● Disease prevention	27
● Healthy lifestyle	28
● Health promotion	30
● Medical technology	32
● Health expenditure	34
● Drug patenting	36
B. Relevant Information	
● World Health Organization (WHO)	38
● Institutions of Disease Control and Prevention in Hong Kong	40
● Summary of Public Health Situations in Hong Kong (As of the End of December 2013)	44
● Summary of Public Health Situations in China	46
● Elderly Health Care Voucher	48
● Common Pathogens	49
● Nutrition Labelling Scheme	50
● Food Additives	52
● Ebola Virus Disease	54
● Influenza	55
● Severe Acute Respiratory Syndrome	57
● Relationship between Exercise and Health	59
● Diet and Nutrient	61

●	Food Safety	63
Part III:	Learning and Teaching Exemplars	65
	Exemplar (1) People's understanding of diseases and international collaboration through the case of Ebola Virus Disease (EVD)	66
	Exemplar (2) Causes and impact of obesity	91
	Exemplar (3) Drug formulary and the development of medical technologies	120
	Exemplar (4) Studying public health policies through the case of Avian Influenza	142
Part IV:	Extended Reading and Reference Materials	171
	A. Publications	172
	B. Relevant resources on the Web-based Resources	176
	Platform for Liberal Studies	

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Preamble

Liberal Studies is an inter-disciplinary core subject of the senior secondary curriculum. It starts with important contemporary issues to ensure that senior secondary students experience a broad and holistic education, continue to construct knowledge and broaden their horizons. With the learning experience gained in this subject, students can enhance their social awareness, develop thinking skills and foster positive values and attitudes.

The *Liberal Studies Curriculum and Assessment Guide (Secondary 4 - 6)* (“*Curriculum and Assessment Guide*”) clearly states that the design of this curriculum is based on the necessary knowledge and capacity for students’ learning in primary and junior secondary education. It aims to “consolidate and broaden the foundational knowledge of every student through studying a range of contemporary issues in different contexts”. This curriculum comprises three interconnected Areas of Study, which in a balanced manner, “represent broad areas of concern about the human condition and the contemporary world. They serve as platforms for the exploration of related issues, so that students can develop a more coherent understanding of the world and come to appreciate the connections among concepts.”

As “platforms for the exploration of related issues”, the three Areas of Study provide a solid foundation for students in their enquiry learning process. The six modules, various themes and key enquiry questions further indicate the focuses and pathways for enquiry, and help students apply the knowledge, concepts and perspectives (such as science, economics, history and culture) of different subjects in specific contexts in order to extend the breadth and depth of these Areas of Study. In this regard, in addition to focusing on the development of students’ enquiry skills, teachers should consider if the selected issues can as a whole cover each Area of Study, module and theme in a balanced way when planning the teaching progress and internal assessment for this subject. This will help students fully understand relevant knowledge and broaden their horizons.

The Education Bureau and the Hong Kong Examinations and Assessment Authority jointly prepared the *Liberal Studies Curriculum and Assessment Resource Package - Interpreting the Curriculum and Understanding the Assessment* (“*Resource Package*”) in June 2013 to help teachers better understand the breadth and depth of the curriculum and the requirements of the public assessment. Teachers generally believe that the *Resource Package* is conducive to planning of the curriculum and teaching

progress. In order to further illustrate the highlights of the curriculum, the Education Bureau published the *Liberal Studies Curriculum Resources Booklet Series* based on the interpretation of the curriculum made in the *Resource Package* published in 2013 and the Medium-term Review recommendations released in 2015. This booklet series provides teachers and students with more appropriate learning and teaching resources according to the six modules of the curriculum to reduce teachers' workload. Each booklet has a similar structure, comprising four parts as follows:

- **Learning and teaching focuses:** It is mainly excerpted from relevant parts of the *Resource Package* of 2013, listing out the learning and teaching focuses of this module and suggesting relevant examples for enquiry for teachers' reference. Relevant contents would be revised in accordance with the results of the medium-term curriculum review.
- **Basic concepts and relevant information:** This part provides students with basic knowledge for learning this module, including basic concepts students should master and some useful relevant information. It also includes diversified and balanced views for reference in the issue-enquiry process. Teachers may distribute relevant information to students if deemed necessary.
- **Learning and teaching exemplars:** This part selects specific issues for enquiry in respect of the learning and teaching focuses of this module, and designs the learning and teaching flow and class activities. The leading modules and related modules are presented in some exemplars, showing the focus of the enquiry and the connection with other modules respectively. These exemplars show that the enquiry process requires attention to the development of both knowledge and skills. Students are expected to adopt multiple perspectives in thinking and foster positive values and attitudes. Each exemplar not only corresponds to the learning and teaching focuses of the module, but also suggests different learning and teaching strategies required in light of teaching and learning contexts, so as to develop students' critical thinking and modest learning attitude which refrains from making any rash criticism. Teachers may also adjust the learning contents and learning and teaching strategies with reference to the suggestions on learning and teaching in this booklet in order to cater for student diversity.
- **Further reading and references:** This part provides teachers with references for lesson preparation in order to complement the teaching contents. Teacher are advised to pay attention to the publications listed in Part A and encourage students to select some of them for extracurricular reading depending on their interests and

abilities, with a view to improving their understanding of the module and developing their independent learning capabilities.

We hope that this booklet series is helpful for teachers in refining their teaching of Liberal Studies. A series of support measures will be introduced in the future, such as conducting seminars and workshops, sharing of frontline teaching experience and updating the learning and teaching exemplars and relevant learning and teaching resources on the Web-based Resource Platform for Liberal Studies (<http://ls.edb.hkedcity.net>). When using the booklet series and other references, teachers shall refer to the latest version of *Curriculum and Assessment Guide* and make school-based adaptations.

During the course of preparation for the booklet series, we have consulted with Curriculum Development Council Committee on Liberal Studies and frontline teachers and invited a number of experts and scholars to review and vet the contents herein. We hereby express our gratitude to them.

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Part I: Learning and Teaching Focuses

The Module of “Public Health” mainly explores the factors which affect the general public’s decisions on health issues, especially the contents of health information and the underlying values. Moreover, teachers should also pay attention to the pros and cons of the development of medical technology and the controversies arising from its development, as well as the relationship between social development and public health policies. In general, teachers are advised to sum up the learning and teaching focuses in this module into the following four aspects:

1. **Understanding the Causes of Diseases and Public Health**
2. **Health Concepts and Health Information**
3. **Development of Medical Technology and the Accompanying Controversies**
4. **The Challenges of Sustaining and Promoting Public Health Development**

When studying the issues in this module, **students will have to possess some basic scientific knowledge**. For example, for issues involving infectious and non-infectious diseases, students must be able to distinguish between the two and give examples of both. Students would also need to understand that infectious diseases are caused by micro-organisms, that the human body has an immune system that resists diseases, etc. However, **it is not necessary to investigate the underlying scientific theories in this area**.

This module **does not require students to acquire an in-depth understanding of medical knowledge** such as the specialised theories of pathology, microbiology, **nor to proficiently grasp the functions and operation of various medical technologies**. Teachers are advised to focus on **the controversies arising from the positive and negative impact of such medical technologies on society, particularly the different views of the various stakeholders from social and moral perspectives**.

1. Understanding the Causes of Diseases and Public Health

This part can be taken as an introduction to this module. Teachers are advised to make use of the incidents of historical or recent outbreaks of epidemic diseases to help students **gain an understanding of the attitude of the authorities and people towards infectious diseases and their approaches for dealing with them. Students should also study how such attitudes and approaches are affected by social and cultural factors.** The following are suggested examples for enquiry:

- The Severe Acute Respiratory Syndrome (Atypical Pneumonia, SARS) epidemic broke out in Hong Kong in 2003. According to studies by microbiologists, the “SARS” virus originated in bats and passed to civet cats. Meanwhile, humans who ate these civet cats became infected. To prevent the epidemic from spreading, the Government introduced a series of preventive measures immediately after the outbreak. When the epidemic was over, the Centre for Health Protection was set up in 2004 to enhance Hong Kong’s public health infrastructure so that it could better respond to public health hazards. The public health awareness of different sectors of society was also raised.

- Brief summary
 - The above two examples aim at enhancing students’ understanding of epidemics and broadening their horizons. If lesson time is too tight, teachers may just select one case for study. Teachers may also consider **choosing other suitable cases for students’ further enquiries in accordance with the circumstances of their schools.** Regardless of the chosen case, learning and teaching should focus on the **lessons the government and the public learnt from the epidemics so that public health amenities were improved afterwards, relevant statutory regulations were revised and public health awareness was raised.** After students have studied the case of epidemics, teachers **should proceed to introduce the concept of public health,** and the factors affecting decision-making on public health. Teachers should avoid spending too much time on this part.
 - When using epidemic case studies, teachers may consider linking them to relevant issues of Module 3, Theme 2: Chinese Culture and Modern Life. **This facilitates students to ponder how traditions could cope with the impact brought about by modern society and the appropriate ways of dealing with them.** For example, students may study why the local Chinese

community in the 19th century regarded the government's quarantine measures as an indirect conflict with their traditional customs and felt discontented. Some Chinese are fond of wild game meat but this may lead to the spread of infectious diseases. In this case, teachers may also guide students to study the relationship between Chinese food culture and public health.

2. Health Concepts and Health Information

Health concepts are closely associated with public health. The general public's understanding of health affects the way the government deals with public health issues and formulates relevant policies. The general public's understanding of health may also stem from the health information they access and believe. When interpreting the learning and teaching focuses for this part, teachers may consider applying this case when teaching **the changes in the general public's views of health at different periods and move on to further explore the sources, contents and impact of health information.**

- **Changes in views of health:** Traditional view of health -> Medical model -> Public health view¹

- It is recommended that teachers use the example of the general public's knowledge of tuberculosis and its treatment at different times to explain the changes in the general public's perception of health concepts and the reasons for these changes.

	Traditional view	Medical model	Public health view
Causes of Tuberculosis	● Punishment of sin	● Infection of bacillus	● Poor hygiene and living conditions ● Crowded living environment
Corresponding measures	● Seeing witch doctors or visiting sacred places	● Vaccination	● Provision of adequate housing ● Improving environmental hygiene ● Increasing vaccination rate

- Brief summary

- Students need not go into details of the three views as the **learning and teaching focus should be on understanding the changes in health concepts and exploring the reasons for these changes. Public health**

¹ The following article relating to changes in the public's views of health is excerpted from pp.25 to 26 of the New Senior Secondary Liberal Studies Teacher's Manual - Knowledge Enrichment Series "Issues of Science, Technology and the Environment in Perspective" (Chapter II) published by the Education Bureau (2011).

view should be accorded the highest importance amongst the three, in line with the learning and teaching focus of this module.

- Apart from the case study of tuberculosis, teachers may also choose other diseases as examples for enquiry and discussion.

➤ **The relationship between personal lifestyle and health**

- According to the World Health Organization (WHO), health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”² If an individual’s lifestyle causes impairment of physical health and depressed mental well-being, or even aggravates the burden on the public health system as a result of such personal behaviour, i.e. making society pay the price, then the discussion of the issue would have to be elevated to the level of public health so as to ensure the public pays more attention to personal lifestyle. This may be further followed by **an enquiry into the roles and responsibilities of the individual and the collective (including the public and the government) in promoting public health.**
- Teachers may consider selecting certain personal lifestyles in conjunction with some relevant news reports and statistics for student enquiry. The following are some suggested examples of enquiry:

- As most Hong Kong people lack a sufficient amount of physical exercise in their daily routines, teachers may guide students to study to what extent this phenomenon is **influenced by the pace of life in Hong Kong.** They may further explore whether such a pace of life is common in other economically developed regions.
- Personal dietary habits significantly impact one’s physical health. Teachers may consider asking students to discuss the dietary habits of Hong Kong people. The enquiry focuses include **the relationship between dietary habits and physical well-being, the fast food culture, and the phenomenon of obesity.** On the other hand, discussion may also be held on the proposition that if the government were to legislate such means (e.g. restrict school menus in order to prevent obesity in school children by means of legislation) and **increase taxation** (e.g. levy tax on

² Please refer to the web page of World Health Organisation (<http://www.who.int/suggestions/faq/en/index.html>).

all food products with saturated fats) to prevent obesity in citizens, **would these steps constitute an intrusion on personal freedom?**

- That smoking is hazardous to one's health is a proven fact beyond dispute. Measures to ban smoking and to prevent young people from having their first cigarettes, however, still fuel controversy. Teachers may try to **explore the controversies arising from anti-smoking measures in the context of Hong Kong. This may also be linked to Module I so that the attitudes and the situation of the young people of Hong Kong concerning smoking can be explored.**

- Brief summary

- When handling the issues in this part, teachers should **focus on the controversies relating to public health, and help students gain an understanding of the views of various stakeholders, and then let students form their own arguments.**
- Teachers may also **introduce the contents in this module which are relevant to other modules when appropriate.** For example, teachers may use the concept of quality of life to discuss with students whether Hong Kong people's lack of exercise and their dietary habits are related to economic development. They may discuss the importing of the fast food culture in various regions and its impact from the perspective of globalization. The discussion may also be taken up from the perspective of the rule of law, and students may be asked to judge whether anti-smoking measures are hindrances to personal freedom. Then, from the perspective of personal growth, teachers may proceed to examine youngsters' attitudes towards attempting smoking.

➤ **Health information**

- Teachers are advised to first introduce to students the sources and the main dissemination channels for health information, and then discuss **how to assess the credibility of such information.**
- Teachers may adopt a case enquiry approach to help students understand the effects of health information on the general public's daily life and its understanding of health. Then, the enquiry may continue on **whether the**

government should monitor such health information or how to do so. The following are suggested examples for enquiry:

- Health supplements and slimming advertisements: Teachers are advised to guide students to **discuss the credibility and effects of these advertisements**, and if time allows, provide an overview of Hong Kong's existing laws on the **regulation of health information and whether there are any loopholes exist in these laws**. In addition, it is also advisable to compare similar laws of other countries and discuss **whether Hong Kong needs even stricter laws to strengthen such regulations**.
- Medical beauty treatments: In recent years, beauty services that claim to have integrated medical procedures have become increasingly popular in Hong Kong. These services, however, involve very high medical risks, and consumers who are attracted by such advertisements might not be aware of these risks. Teachers are advised to guide students to enquire into such issues as the **reasons for the popularity** of such beauty services, **whether the promotion strategies** of these service providers **are misleading**, and how the government should **regulate the beauty treatment industry**.

- Brief summary
 - The above examples for enquiry are provided for teachers' consideration in light of their schools' circumstances. **The focus is to enable students to identify what messages are conveyed by such health information, and the impact of such messages**. As to whether the scope of enquiry should be extended to scenarios outside Hong Kong, teachers should decide according to the amount of time available and students' abilities.
 - In facilitating students' study of these examples, teachers may consider **incorporating contents that are relevant to other modules**. Examples are, for Module 1, the challenges and opportunities posed to adolescents by current popular trends, and the values conveyed by the media to adolescents; for Module 2, the theme of the rule of law is relevant to the question of whether health information should be monitored or how to do so. Finally, teachers may guide students to further discuss this issue from the perspective of the rule of law.

3. Development of Medical Technology and the Accompanying Controversies

Although the development of medical technology brings with it a general improvement in human health, it has also sparked debates on social and ethical grounds. On the other hand, the allocation of medical resources and the risks involved in the promotion of development in medical technology are also important aspects to focus on in learning and teaching this Module.

- Teachers may guide students to discuss how medical technology can help improve human health from the perspective of the **treatment and prevention of diseases**. The following are examples of medical technology and the suggested focuses for enquiry:

- New methods, techniques and instruments for disease diagnosis and treatment, such as cardiac catheterization, microsurgery, and targeted cancer therapy, continue to emerge. In terms of disease prevention, the availability of more precise diagnostic instruments and more convenient diagnostic techniques, coupled with government publicity, have made preventive examinations for different kinds of diseases, such as tests for colon cancer and screening tests for cervical cancer, gradually acceptable to the general public. As a result, there has been a fall in the incidence of disease.
- Students need not dig deep into the medical theories of the above examples, nor do they need to investigate details of the various medical technologies. Instead, the focus is to understand **how human beings have been benefited from the development of medical technology**. Teachers may consider using these examples to help students **gain an understanding of how health information affects the public's understanding of public health and their decisions regarding personal health**.

- As medical technology improves our health generally, people's average lifespan has increased. Teachers may list examples of prolonged average lifespan in countries around the world and in Hong Kong as an introduction to the enquiry of the benefits of the development of medical technology. **They may then examine the positive effects brought about by such improvements in health**, such as promoting an increase in productivity, and economic development in society. There also exist, however, **social problems**

associated with longer lifespan. For instance, care for the elderly, greater pension burden on the society, and the growing trend of an aging population. Moreover, when students explore how to handle such social problems, they may start by focusing on the development of medical technology, and then move on to deal with related controversial issues in the community.

- Funding for the development of medical technology is not a trifling matter. Whether the development of certain medical technologies should continue, how priority should be accorded in resource allocation, whether resources should be concentrated on disease prevention or treatment, or even how different risk factors of epidemic outbreaks should be weighed when allocating resources to avoid waste, have become some of the controversial issues in society. The following examples from the United States and Hong Kong are given for teachers' reference:

- Artificial heart: Teachers may consider using this case study from the United States³ to guide students to discuss, for certain medical technologies that require huge investment of resources but benefit a small number of patients, whether their application should be stopped or further research and development should be done. After discussing the US case study, teachers may ask students to analyse Hong Kong's situation and consider whether disease prevention should be accorded priority when the government allocates resources to public health.
- Pre-exposure vaccination: Teachers may consider using the Hong Kong government's human swine influenza vaccination programme in 2009-10 as an example to explain the effectiveness and risks of vaccination and the possibility of wastage through excessive procurement of vaccines.

- Medical technology is developing rapidly. Teachers may discuss with students in class whether such technology might be subject to abuse, or whether the application of such technology would arouse controversies in areas of ethics and morality. The following examples of medical technology that may be subject to abuse and hence may cause ethical controversies are suggested for teachers' reference:

³ Please refer to pp.43 to 44 of the New Senior Secondary Liberal Studies Teacher's Manual - Knowledge Enrichment Series "Issues of Science, Technology and the Environment in Perspective" (Chapter 2), published by the Education Bureau (2011).

- Misuse of antibiotics: Teachers may use Hong Kong and/or the Mainland as examples to help students understand the **causes and effects of the misuse of antibiotics** (students need not dig deeply into the background of medical theories), and to examine **the possible approaches to remedy this situation.**
- Organ transplants: The premise of any organ transplant is the availability of the organ, and hence the question to ask is whether there are sufficient organ donors in society. If there are very few organ donors, **through what other channels can organs be obtained for transplant? Is it legal and ethical to obtain organs from such channels?** All of these are highly controversial questions. Teachers are advised to use Hong Kong and/or the Mainland as examples to guide students to conduct enquiry. When enquiring into these issues, teachers may consider introducing relevant **Chinese traditional concepts (for example, keeping the remains of the deceased intact) for further discussion.**
- Biotechnology: Teachers are advised to select one or two examples for student enquiry. Students, however, need not understand details of the scientific theory underlying such biotechnology, but should instead focus on the **controversies provoked by these examples.** For instance, does biotechnology development lead to improvements for species? Or has it interfered with natural ecological processes? To what extent has such technology benefited human beings? What controversies have been aroused in the spheres of **medical development, legal statute, and ethical morality** by the advancement of medical technologies such as artificial insemination, the use of surrogate mothers and gender selection of children?

4. **The Challenges of Sustaining and Promoting Public Health Development**

Teachers may choose relevant issues for enquiry in such areas as public health policies in Hong Kong, cross-border information-sharing mechanisms between the Mainland and Hong Kong, international public health affairs and so on. Moreover, while guiding students to conduct discussions on these issues, teachers should ensure that students understand the points of controversy, for instance, **the roles played by policy makers (government bodies and international organisations), priorities for resource allocation in policy formulation, whether the policies can promote social equality and resolve social or international conflicts.**

- **Hong Kong's public health policies:** It is recommended that teachers choose some statistics to give an overview of public health expenditure as a percentage of GDP in Hong Kong and in other countries⁴. This helps students gain **a general understanding of public health expenditure in Hong Kong.** Teachers should also consider bringing up the abovementioned case of prolonged lifespan as a result of advanced medical technology to illustrate the possible trends of higher health expenditure. This helps students **explore how public health expenditure should be allocated in order to meet the society's demand for diversified health services.** The following are suggested examples for enquiry:

- Drug Formulary System: In 2005, the Hospital Authority launched the Drug Formulary system in those hospitals under its administration. The controversy mainly centred on the question of **whether public health services can meet the needs of low-income members of the society.** It is hoped that through studying this example, students may **increase their awareness of the quality of life of those with a low socio-economic status in Hong Kong.**
- Development of traditional Chinese medicine: Currently, all public hospitals and private healthcare institutions in Hong Kong are using western medicine as the mainstream. Teachers are advised to guide students to gain a **preliminary understanding of the differences in diagnosis and treatment between traditional Chinese medicine and western medicine.** so that they can continue to explore **how (or whether) to support the development of traditional Chinese**

⁴ Please refer to the web page of the Food and Health Bureau (http://www.fhb.gov.hk/statistics/cn/statistics/health_expenditure.htm).

medicine.

- **Cross-border information-sharing mechanism:** Under the “One country, Two Systems” principle, Hong Kong is closely linked with the Mainland through frequent exchanges of people and goods. Information-sharing policies across borders have been put in place in many fields. For public health, teachers are advised to focus on **two key areas: food safety and the prevention of epidemic diseases.** Teachers may consider selecting specific recent or previous cases regarding these key areas for student enquiry, such as the inspection of food imported from the Mainland so as to ensure food safety, and setting quota for live poultry imports from the Mainland during the bird flu epidemic to prevent its spread to Hong Kong. The enquiry focus of these cases should be on **the role played by the cross-border information-sharing mechanism in safeguarding public health in Hong Kong.**

- **International public health affairs:** Teachers are advised to choose examples for enquiry in these areas from the **organisational and institutional perspectives, and to consider linking them to the learning and teaching focuses of the Modules of “Modern China” and “Globalization” when conducting these enquiries.** The following are the suggested examples:

- The WHO initiatives on fighting AIDS: Teachers are advised to **refer to the global governance concept in the “Globalization” Module so as to explain the roles and functions of the WHO in dealing with global health issues.** Then, consideration may be given to citing the WHO’s efforts in fighting AIDS (or SARS, human swine influenza, etc.) as an example to guide students towards in-depth discussions. The emphasis should be placed on **how the WHO coordinates with all countries in disease prevention.** Teachers may also try to guide students to gain an understanding of how China works in line with the WHO’s initiatives to fight against AIDS (or other infectious diseases), and to assess the gain and loss of such efforts.

- Drug patenting: Teachers are advised to guide students to weigh the pros and cons of drug patenting, and to focus the enquiry on **how the international community helps developing countries obtain the drugs needed for the treatment of patients in these countries. Teachers may**

then extend the enquiry from drug patenting to the disparities and conflicts between developing and developed countries, so as to highlight **the disparity between the rich and the poor in the international community**. This is also related to the learning and teaching focus of economic globalization.

- **International healthcare cooperation**: If the international community is to help developing countries improve their currently backward state of domestic medical technology, one of the approaches is to **aid developing countries through international healthcare cooperation via various channels**. The following are suggested examples for enquiry:

- Medical diplomacy (healthcare diplomacy): Teachers are advised to cite the Chinese government's recent measures of sending medical teams to developing countries (mainly in Africa) to provide medical aid as an example, so students may **conduct enquiry into the outcomes of such measures**. Teachers may also consider linking this issue with the learning and teaching focus in Module 3 – “China's Participation in International Affairs” to guide students to discuss **whether such measures can enhance China's status and image in the international community**. If time allows, teachers may also introduce examples of medical diplomacy of other countries (such as Cuba).
- NGO charity and humanitarian aid: Teachers are advised to select examples of one or two NGOs' efforts (such as Doctors Without Borders, World Vision or Oxfam). This helps students conduct enquiry into **the contributions and limitations of NGO aid programmes**, and thus gain a deeper understanding of the **roles and functions of NGOs in global governance**. On the other hand, teachers may also collect case studies of celebrities who take part in the activities of these NGOs. Through the personal experiences of these celebrities, students may explore **what special qualities a global citizen should have**.

Part II: Basic Concepts and Relevant Information

Liberal Studies covers a large number of concepts. While helping students in issue-enquiry, teachers may elaborate on examples or events with relevant concepts. In this way, the nature of the issue, the phenomenon reflected and the points of conflict can be analysed so that students can gain more in-depth understanding of the curriculum. Furthermore, if students are able to master the meanings of concepts, they may apply these concepts in the discussion of other similar issues in order to construct knowledge. Besides, the process of issue-enquiry also involves understanding of information of various aspects for analysis, and giving personal views, judgement and comments with critical thinking.

In order to assist teachers in the lesson preparation and students in their learning, this part sets out the basic concepts (Section A below) and relevant information (Section B below) that can be adopted in this module for reference.

The basic concepts set out in Section A may be applied in understanding and dealing with the learning and teaching focuses of this module. Teachers are advised to adopt different learning and teaching strategies in class and explain to students the meanings of the concepts in conjunction with the issues, or to analyse and explain them through conceptualisation. Teachers may distribute the explanation of these concepts to students before or after class, and provide proper guidance to help them understand how to apply these concepts as well as understand their meanings, so that students would not regard these as materials for memorisation.

The relevant information in Section B is designed to provide students with basic knowledge to understand this module. These include, for example, the historical background, different opinions of stakeholders, brief introduction of governmental and non-governmental organisations, and data showing the development trend or recent development. The purpose is to supplement students' basic knowledge for issue-enquiry. Teachers may distribute such information to students as references as appropriate depending on the circumstances.

Teachers should be reminded that all the concepts and information provided in this part are for reference only. When preparing the learning and teaching materials and designing the learning activities, teachers should make adaptations based on the school context and the issue to be dealt with in class.

A. Basic Concepts

Health

The concept of health has been continually evolving. People living in different times and of different cultural backgrounds have different views on “body health” and “what constitutes a state of well-being”. Up to now, there are several definitions of health, which involve different aspects. The World Health Organization (WHO) regards health as a holistic concept, recognising the interdependence between an individual’s different health dimensions, namely “holistic health”: “health is a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity.”¹

The state of well-being represents the subjective understanding of one’s own health, which means an individual’s perception of the satisfactory physical, intellectual, emotional and social states. “Well-being” and “quality of life” are two closely related concepts, which include material, physical, psychological, social and cultural needs of human beings, as well as the satisfaction of these needs for enjoying life.

Holistic health includes the following four dimensions:

- Physical health - This aspect is related to the physical functioning of the human body. This aspect is relatively easy to measure.
- Intellectual health - This aspect is concerned with the ability to memorise, reason, analyse and make rational decisions. Intellectual health also influences one’s mental state.
- Emotional health - This aspect is concerned with the ability to recognise and express emotions properly, including joy, anger, grief, fear and frustration. This also includes the ability to cope with stress, worries and depression in daily life.
- Social health - This aspect is concerned with the ability to establish and maintain good relationships with others. A socially healthy individual is characterised by the concern for others, the ability to show respect, a sense of belonging to the community and society and the ability to communicate effectively.

¹ This definition is cited from the Preamble to the Constitution of the World Health Organization as adopted by the International Health Conference, New York, 19-22 June, 1946; signed on 22 July 1946 by the representatives of 61 States (Official Records of the World Health Organization, no. 2, p. 100) and entered into force on 7 April 1948. The Definition has not been amended since 1948.

These dimensions of well-being are interrelated and the following are examples of their interrelationships:

- Disabilities (physical health) affect one's social life (social health)
- An Arthritics patient, who suffers from pain (physical health), may be in a depressed mood (emotional health).
- A person who is suffering from depression (emotional health) may avoid interaction with people (social health).
- For a person who is experiencing failure, if he/she has good interpersonal relationships (social health), his/her friends may care about him/her at the right time, and help him/her analyse the problem, so that he/she can still maintain a positive and optimistic attitude towards the problem (intellectual health).

When an individual is in a good condition of health, all dimensions function in an integrated and coordinated way. These dimensions are all interrelated. Overemphasising one dimension may be done at the expense of the others. The interactions of all the dimensions contribute to the richness of a person's life.

Infectious Diseases and Epidemics

Infectious diseases refer to diseases caused by the transmission of pathogens (such as bacteria, viruses, fungi, protozoa, parasitic worms and prions (refer to the relevant information “common pathogens”)) to human beings. Pathogens can multiply or release toxins after invading the human body, damaging normal cells and their functions. In severe cases, they may lead to death. Infectious diseases can spread through various means. Some spread through direct human contact, whereas others are contracted through water, the air, droplets, food, body fluid, excreta or any other medium (such as insects).

According to the Centers for Disease Control and Prevention (CDC), an epidemic is a disease that occurs in a certain area or community with prevalence rate higher than expected in a certain period; pandemic refers to an epidemic that has spread over several countries or continents, usually affecting a large number of people. Epidemiology is the study on the distribution and underlying principles for the occurrence of diseases in different communities, and hence applying to hygiene control. While most epidemic diseases that arouse public concern are infectious diseases (such as AIDS, Ebola virus disease, SARS and avian influenza), a number of non-infectious diseases (such as cardiovascular diseases, cancer, diabetes and chronic respiratory diseases) actually fall within the scope of epidemiological study and application.

Alert and Response for Epidemic Diseases

The World Health Organization established the Epidemic and Pandemic Alert and Response Programme (EPR), which is responsible for preventing, detecting and responding in a timely manner to public health emergencies of international concern. In summary, EPR is responsible for the following six key tasks:

- Support Member States to implement national scale epidemic preparedness and immediate response measures, including laboratory facilities as well as alert and response systems;
- Support relevant training programmes;
- Coordinate and support Member States for seasonal influenza preparedness and response;
- Develop standardised protocols for readiness and response to major epidemic-prone diseases (e.g. meningitis, yellow fever, plague);
- Strengthen biosafety, biosecurity and readiness for outbreaks of dangerous and emerging pathogens outbreaks (e.g. SARS, viral haemorrhagic fevers);

- Provide a global operational platform and support the setting up of regional offices.

Opportunities and Challenges for Public Health

Epidemic diseases rapidly spread in a specific region, in a country, and eventually around the globe, threatening human health and even causing death. Therefore, epidemics often lead to public panic, and create significant impact on economic activities of the society and people's social lives. Under such circumstances, the government faces the challenge of controlling epidemic diseases, stabilising public sentiment and revitalising the economy in a timely manner. The effectiveness of a government's outbreak-control measures depends on various factors, such as the understanding of epidemic diseases, the advancement of scientific research, the implementation of effective public health measures, good risk communications and cooperation from its citizens. Although epidemic diseases cause sicknesses and deaths, they usually enhance public understanding and awareness of public health. In addition, they can also stimulate the development of medical technologies (such as the development of more effective vaccines) and prompt countries, as well as international organisations, to review and improve public health systems and policies.

Non-infectious Diseases

Non-infectious diseases are diseases that are non-infectious and non-transmissible among people, and this term usually refers to chronic diseases. Non-infectious diseases usually last for a long period of time and progress relatively slowly. Common examples of non-infectious diseases include cardiovascular diseases (such as myocardial infarction and stroke), cancer, chronic respiratory diseases (such as chronic obstructive pulmonary disease and asthma) and diabetes.

The causes of these diseases are extremely complicated. They are elicited by multiple factors, including genetics, degeneration due to ageing, and most importantly, unhealthy lifestyles such as smoking, alcohol addiction, unbalanced diet and lack of exercise. These lifestyles easily cause hypertension, high cholesterol, diabetes, overweight and obesity, and increase the risk of developing various types of chronic diseases.

At present, non-infectious diseases have replaced infectious diseases as the major health burden in developed countries. It is also a significant health problem in developing countries, threatening social development.

In 2001, chronic diseases accounted for 46% of the burden of diseases around the world, and the percentage is surging rapidly in low-income countries. In developing regions (constituting four-fifths of the world's population), non-infectious disease such as depression and heart diseases, as well as fatal traffic accidents, have been rapidly replacing traditional causes (such as infectious diseases and malnutrition) as the main cause of deforming and premature deaths. According to a report of the World Health Organization, 36 million deaths that occurred globally in 2012 were caused by non-infectious diseases, constituting 68% of the total deaths (56 million).

Non-infectious diseases are also a leading cause of death in Hong Kong. In 2012, cancer and heart diseases are respectively the first and third most common causes of death in Hong Kong. The two diseases alone claimed more than 19,000 lives, which make up nearly 45% of the total deaths in Hong Kong.

Public Health

According to the World Health Organization, “public health” refers to all organised measures (whether public or private) to prevent diseases, promote health, and prolong life among the population as a whole. These activities aim to provide an environment for people to live healthily and focus on the entire population, not only on individual patients or diseases.

Public health focuses not only on disease treatment, or on the mere provision of medical services, it also concentrates on lowering medical expenses as well as lessening the burden on public medical services and facilities through disease prevention, reducing injuries and deaths. When people are in good health, they are capable of making greater contribution to economic development. In order to effectively prevent diseases and keep people healthy, public health also includes taking various measures, such as implementing educational programmes, developing and executing policies, as well as encouraging and enhancing relevant research studies.

As public health affects the whole community, its assessment has to take into account the life expectancy of the entire population, infant and maternal mortalities, as well as the data about various diseases. In addition, understanding the distribution of diseases is important for controlling diseases in a society. For example, the incidence of colon and colorectal cancer is higher in developed countries than in developing countries - a phenomenon likely to be related to the high-in-fat and low-in-fibre food habit (in developed countries). Disease distribution can help experts identify possible causes of diseases and predict the future trend of disease prevalence, which can serve as reference for policy-making.

Public health policy decisions are often affected by various factors. As the implementation of public health policies requires the use of public funds, when deciding how to allocate resources to raise and enhance public health standards, the government has to consider the effectiveness and urgency of relevant policies for disease control, their impact on different sectors of the society and the general public, as well as the long-term and short-term effects of relevant policies on public finance. In addition, as the cooperation from different sectors of the society is also needed for the implementation of public health policies, the government should also consider the stance and opinions of different stakeholders, such as the workload and remuneration of medical staff, as well as the degree of acceptance of the general public.

Scientific Development and Public Health

Public understanding about health is often affected by a number of factors, including religion, culture and science. From the scientific perspective, in order to meet the needs of modern society, professionals like medical researchers and medical practitioners must have solid scientific knowledge in order to understand health and diseases. Researchers test theories or hypotheses through scientific experiments, collect data through different methods of measurement, and analyse the findings to draw conclusions. In this way, other researchers can learn about the discovery and repeat these experiments to verify the results. Researchers can also falsify previous theories. In general, scientific investigation includes the following steps: defining the problem, formulating hypothesis, designing methods of investigation (including fair test), measuring and recording findings, analysing data and drawing conclusions. Historically, our understanding of health has gone through several stages of development as affected by various factors: it first evolved from the “traditional perception of health” to the “medical model”, and then developed into the modern “concept of public health”.

Traditional Concept of Health

- Before medicine entered the stage of scientific development, people often associated causes of diseases with religious or cultural beliefs. As different ethnic groups had vastly different views regarding religion and culture, their understanding of health was also quite diverse. The effect these views had on public health was even greater than that of scientific development.
- Religious and cultural views had once been an important element in many people’s lives. In the days when smallpox was a fatal disease, many ancient Chinese families worshipped the so-called “T’ou-Shen Niang-Niang” (also called the “goddess of smallpox”). To avoid angering the deity, those infected with smallpox and their families had to strictly abide by the rules provided.

Medical Model

- Under the medical model, people get sick because the cells, organs or life systems cannot maintain proper functions, and health is defined as the absence of infirmity or ailment. Scientific methods exerted great influence on the medical model. Scientific methods include defining the problem, formulating hypothesis, designing and conducting repeatable and controlled experiments, and drawing conclusions from experimental findings.

- In addition to advancing people's understanding of health and diseases, the development in scientific research (such as anatomy and microbiology) has also promoted the development of the medical model.

The Holistic Concept of Public Health

- Although the medical model helps us know more about the causes of diseases, it has its limitations. For example, in addition to diseases, social and environmental factors are among the determinants of human health and may heighten health hazard.
- In the last few decades, the World Health Organization (WHO) has ceased to interpret health purely based on the medical model: it has adopted a more holistic approach in defining health (refer to the basic concept "health"). To conduct research on public health and factors risking people's health, assessments from different perspectives and approaches are required, such as sociological factors (political and economic aspects) and environmental factors (environmental quality and pollution).
- The holistic concept of public health focuses on the impact of socioeconomic status, education level and environmental factors, etc, on the health of individuals. The concept includes different issues, such as social inequalities, poverty, urbanisation and globalization. In some aspects, this concept is similar to theories brought forth by traditional philosophers of ancient Asia and Greece. They all consider health to be connected to whether human beings are living in perfect harmony with the natural environment.

Disease Diagnosis and Treatment

Disease diagnosis and treatment usually require professional knowledge and training in medicine. Early symptoms of many diseases are not easily observable and similar symptoms may be caused by many different diseases. Diagnosis refers to the process whereby physicians identify a medical condition or disease by observing a patient's symptoms together with an analysis of the laboratory test results. Diagnosis plays a significant role in deciding the kind of treatment to be taken.

In Western medicine, a typical diagnosis procedure begins when a patient consults a physician who first reviews the patient's medical records, family history, unhealthy habits (such as smoking and excessive drinking), travel history, drugs used (including drug allergies) and current physical conditions, followed by listening to the patient's description about his/her ailment, and then performing relevant examinations. Where necessary, medical practitioners will conduct appropriate tests on the patient, such as blood test, stool and urine tests, as well as electrocardiogram, X-ray and CAT scan.

Disease treatment refers to actions or measures taken to alleviate or cure diseases. Treatment methods commonly used in Western medicine include medication, surgical operation, physiotherapy, radiotherapy and psychotherapy. Health education and doctor's advice for the patients are also integral parts of the treatment.

According to the theory of traditional Chinese medicine (TCM), the human body and the environment form a whole entity. Given their mutual influence, one can make conjectures about health conditions through physical examinations of the body. Therefore, TCM employs four basic methods (inspection, auscultation and olfaction, enquiry and palpation) to track symptoms, make diagnosis and prescribe treatment after thoroughly considering multiple causes. Major treatment methods include using Chinese medicine, acupuncture and massage.

Disease Prevention

From the perspective of public health, disease prevention can be classified into three stages.

The first stage is primary prevention which aims at avoiding the development of a disease or injury before it ever occurs. Most population-based health promotion and disease prevention activities (such as vaccination, killing mosquitoes, or health education encouraging the public to do more exercises) are primary preventive measures.

Primary prevention can be carried out on personal and community levels. Take smoking for instance, on a personal level, doctors may educate patients about the health risks associated with smoking and the ways to quit smoking. This has the advantage of being patient specific. On a community level, preventive measures may include increasing tobacco taxes and prohibiting smoking at public places. This has the advantage of lowering the health risk associated with smoking on the entire population.

The second stage is secondary prevention. It aims at early detection of diseases, thereby preventing diseases from progressing and increasing the chance of curing. Various health check-ups (for example, blood pressure measurement) and the screening programme for diseases (for example, the Pap smear test for cervical cancer), as well as different medical treatments carried out after diagnosis, are all examples of secondary preventive measures.

The third stage is tertiary prevention. This refers to the proper rehabilitation of patients to minimise disabilities and complications, enhance their abilities to manage their own conditions and health (for example, helping patients with Parkinson's disease understand their own disease conditions, and manage their own living independently as far as possible). The treatments in this stage aim to improve the patient's bodily functions and quality of life, even if the disease itself may not possibly be cured. The stage also includes providing social services to patients with chronic diseases and mental disorders, and the provision of rehabilitation services to the elderly and people with disabilities.

Healthy Lifestyle

Lifestyles and habits can be the determinant of one's health conditions. Exposure to risk factors, such as unhealthy diet, lack of exercise and emotional instability may result in poor health, which in turn affects one's daily life. Illness is considered as detrimental to productivity and the workforce, and therefore affects the economy of a society. In addition, poor public health condition leads to an increase in health expenditures, and thus adding financial burdens to the country or region. This is why many governments highly emphasise the promotion of healthy lifestyles and habits. Other than benefiting the community, people also enjoy a longer life span and suffer from fewer diseases.

Healthy lifestyles and habits include healthy diet, appropriate amount of exercise, good stress management and avoiding habits with health risks.

Firstly, food intake is the main source of energy and nutrients for the human body. Inadequate food intake may result in malnutrition, while excessive consumption may result in obesity. In addition, a healthy diet also takes into consideration the nutrients contained in different types of food. An unbalanced diet could result in certain non-infectious diseases. For instance, cholesterol (low-density lipoprotein in particular) is closely associated with cardiovascular diseases. Trans fat increases the level of low-density lipoprotein cholesterol within the human bodies, but lower the level of high-density lipoprotein cholesterol. Eating less processed food, convenient and junk food makes one's diet healthier, since these foods usually contain more trans fat. In addition, too much salt intake increases the likelihood of developing hypertension, as well as the risk of suffering from strokes and heart diseases, while too much sugar intake results in obesity and tooth decay. Hong Kong and many other governments have issued guidelines to encourage people to adopt a balanced diet. The Food Pyramid is one of the most widely publicised guidelines. It illustrates with diagrams the percentages of recommended intakes for different foods.

Secondly, doing an appropriate amount of exercise regularly enhances functions of the heart, lungs, muscles, bones and the immune system, while lowering the risk of developing a number of chronic diseases (such as heart diseases, cerebrovascular diseases, hypertension, diabetes, obesity, and some forms of cancer and mood disorders). Lack of exercise is common in Hong Kong: more than half of the population does not exercise on a regular basis. To enhance physical health, exercising does not have to be vigorous. A daily amount of exercise that burns 150 calories of energy is beneficial to the body, e.g. walking 2 kilometres in 30 minutes, swimming

laps for 20 minutes, etc.

Good stress management can promote physical and mental health. Stress is generally originated from the mentality of individuals as well as the external environment. Stress is detrimental to physical health in many ways, such as affecting hormonal secretion and sleeping pattern. Smoking, drug abuse and excessive drinking are habits harmful to public health, therefore it is essential to avoid these habits in order to lead a healthy life.

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Health Promotion

Health promotion is an important part of public health and it plays a vital role in the prevention of diseases. Health promotion refers to the process that enables people to better control and improve their health. It is a process that not only involves individual actions, but also covers a series of social and environmental measures. The main strategies of health promotion include health education, community development, as well as related public health policies, laws and regulations.

Health education is one of the major strategies in health promotion. Through conveying knowledge about public health and raising people's awareness of health, health education has been proven to be effective in preventing diseases. In addition, health education can also nurture the responsibility of individuals and the society to maintain health.

Intervention on the society and the environment is another way to carry out health promotion. For instance, to reduce health risks (e.g. obesity), the EatSmart@school.hk Campaign organised by the Department of Health worked closely with schools, parents and food suppliers to provide students with healthier food.

Health promotion can also be actualised through public health legislation. One of the well-known examples is the legislation and implementation of the Smoking (Public Health) Ordinance, which has largely reduced the prevalence of diseases associated with smoking.

At present, there are many international organisations on health promotion, and the most influential organisations are World Health Organization (WHO) and Centers for Disease Control and Prevention (CDC). WHO provides a wide range of educational materials and related information on a variety of diseases, health promoting factors, psychological health as well as medical care, all of which can be freely accessed on the website. The WHO also promotes health-related educational activities through its regional offices. The CDC aims to prevent and control "active" infectious diseases in the U.S. and abroad. Through its strong partnerships with the U.S. health departments as well as other organisations, the CDC focuses on improving people's health by developing and applying disease preventive and control measures while organising activities concerning environmental hygiene, occupational health, health promotion, prevention and education. Countries across the world make reference to the studies and suggestions of the CDC. The International Union for Health Promotion and Education (IUHPE) is among other such international organisations.

Up until now, governments have been the major providers of medical information and public health data to the general public. In the present information era, other than the governments, the public can also gain access to health information through other channels. Individuals, corporations, institutions and related tertiary education institutes can easily disseminate a wider range of health related data and information. Some even promote their products and services. However, the accuracy and reliability of the health information coming from such diversified sources may vary. Some may even be biased scientifically. Therefore, citizens ought to stay more vigilant in order to examine the reliability of different sources. Regarding how to regulate the dissemination of health information and educate citizens to examine the reliability of information, respective governments need to exercise their wits, while maintaining the freedom of speech and business.

Medical Technology

Through systematic experiments and researches, medical research enhances people's understanding of diseases by generating relevant knowledge and theories, and helps to formulate and improve disease prevention measures. Researches on medical technologies can also enhance the development of disease treatment. Although medical research and technology have improved public health and quality of life, medical researches usually have to be funded by the government. Using advanced medical technologies and equipment is sometimes controversial, since it may increase health expenditure and financial burdens. On the other hand, the human genome project and human embryonic stem cell researches have aroused moral and ethical concerns.

How Medical Research and Technology Promote Public health

1. Vaccination

The human immune system is capable of identifying outside pathogens as “invaders” (such as viruses and bacteria) and triggering immune responses, including the production and secretion of antibodies to fight against such invasions. The immune system is equipped with a “memory” function, which enables more rapid and intense immune responses with the repeated exposure of the same types of viruses or bacteria, thus reducing the risk of infection and disease. The aim of vaccination is to expose the immune system to pathogens in advance, so that the body is better prepared for defending itself against infections. Vaccines usually contain dead or attenuated pathogens or toxoids produced by pathogens.

2. Molecular Biology

Molecular biology is regarded as having great potential in the treatment and diagnosis of diseases. For example, Polymerase Chain Reaction (PCR) is commonly used in hospitals to detect and confirm Hepatitis B virus infection. In addition, molecular biology techniques have been widely used to study the source, transmission and evolution of viruses. It played a crucial role during the outbreak of avian influenza and SARS in Hong Kong.

Moral Conflicts Arising from Medical Researches

1. Human Genome Project

With the completion of the Human Genome Project (HGP) in 2005, the basic

genetic make-up of a human being is now known. The identification of approximately 3 billion base pairs has provided valuable information about genetic related diseases, such as breast cancer and the Alzheimer's disease.

Nevertheless, the ownership of the genetic information and issues of privacy have raised concerns. For example, an insurance company may make reference to the genetic information and refuse to provide coverage for individuals with "defective" genes. Similar situations may emerge at the workplace when an employer refuses to employ individuals who have "defective" genes.

2. Human Embryonic Stem Cells

Another area which raised great ethical concern is the human embryonic stem cells (hESCs) researches. Human embryonic stem cells have great therapeutic potential, since the cells can be transformed into all types of cells in the human body. The technique has made therapeutic cloning possible. Scientists believe that the reproduction of embryonic stem cells to produce human tissues or organs is promising in treating some chronic diseases.

One of the major controversies over human embryonic stem cell research is whether embryos should be regarded as life. The U.S. Federal government and some European countries, such as Spain and Sweden, have forbidden the generation of embryos for research purposes. Researchers can only obtain embryos from abortion clinics or excessive fertilised eggs from in vitro fertilisations. Nevertheless, some countries such as the United Kingdom and Denmark allow the generation of embryos purely for scientific research purposes.

Health Expenditure

Health expenditure includes expenditure on health and its related expenses, which primarily or mainly aims at improving health. Health expenditure include spending on medical care services, disease prevention, health promotion, rehabilitation, community health-related activities, health administration and regulation, as well as the capital investment primarily used for the improvement of health. It also includes expenses used for health-related services, such as expenses for training and developing medical practitioners, as well as medical research and development. The sources of funding are from the government, private institutions and households.

In most countries, especially in developed countries, health expenditure increases with Gross Domestic Product (GDP). The main reasons for the increase are an ageing population, increasing demands for medical services, better quality of medical services, as well as rising popularity and development of medical technologies (e.g. better drugs and medical equipment).

Health Expenditure in Hong Kong

While Hong Kong's overall health expenditure on health (as indicated by its percentage of GDP) is not high compared to that of developed countries, our healthcare system is also challenged by a growing financial burden. Due to the ageing population and increasing demand for medical services and equipment, Hong Kong's health expenditure is expected to increase further in the future:

- The local total health expenditure in 2011 - 2012 was HK\$101.985 billion, which means the annual average expenditure per capita is HK\$14,422.
- Hong Kong's total health expenditure (including the public and private sectors) comprised 5.1% of GDP in 2010 - 2011 (with 2.5% for the public sector). This is expected to increase to 9.2% in 2033.
- The increase in total health expenditure from 1989/90 to 2011 - 2012 was largely driven by the public health expenditure, which soared by 327% cumulatively in real terms during the period. This well exceeded the corresponding increase of 198% for private health expenditure.

In order to cover the ever heavier expenditure on health, the Hong Kong government is committed to finding an appropriate plan for medical reforms: for instance, the government started public consultation on its Voluntary Health Insurance Scheme at the end of 2014. By setting up the Voluntary Health Insurance Scheme, the

government aims to encourage people who have the resource to use private medical services more often, taking an important step towards enhancing the sustainable development of its medical system. The vision of the scheme is to enable Hong Kong citizens to choose private medical insurance and medical services that are affordable, justifiable with guaranteed quality through the establishment of a voluntary participation scheme regulated and monitored by the government.

Drug Patenting

Patent protection is a type of statutory right granted by the government to the inventor, so as to regulate the exclusive application, manufacture and sales of an invention. The intellectual property right for the invention would be protected during the specified period; in return, the inventor is required to disclose detailed information about the invention, thus enhancing the scientific and technological development of the nation and the world.

Patenting serves four functions. Firstly, its primary function is to safeguard the benefits of inventors, enabling them to gain reasonable returns from their inventions. Therefore, patenting encourages research and innovations that contribute to public health. Secondly, patenting enhances the technological level and equipment standard required for research and invention, and is regarded as providing the necessary conditions for technology-driven markets. Thirdly, as the detailed information about the invention can be made public with patenting, it enhances scientific research and development. Lastly, possessing a patent indicates that the inventors and corporations are capable of research and innovations, and thus can attract investments for future development.

Patenting laws specify the patent coverage, period of validity and what information about the invention is required to disclose. However, the requirements vary in different countries. Therefore, patenting is regarded as a territory-bounded system. For instance, when handling a case where two independent parties file a patent application for the same invention, European countries would adopt a “First-to-File” approach, granting the patent to the unit that filed the application earlier. The United States, on the other hand, would adopt a “First-to-Invent” approach, granting the patent to the party deemed to have invented the invention first, by reviewing production records, production dates and other relevant information.

Drug patenting provides protection to investments in research and development. From an investment perspective, inventing drugs is a high-risk undertaking without any guarantee for returns. The development of any new drug at least costs several hundred millions of US dollars. Yet, ultimately, only a few new drugs can be successfully registered for sale. Therefore, pharmaceutical companies will apply for as many patents as possible to ensure fiscal return.

While patenting can protect pharmaceutical investment and motivate research and development, the resulting monopolised market will push up drug prices, and thus

patients may not necessarily benefit from patenting. This is a perennial issue, especially in developing countries where the majority of people cannot afford expensive drugs.

Some governments have adopted the compulsory patent licensing to tackle these problems. This allowance was initiated by the World Trade Organization (WTO). The aim is to allow developing countries to gain access to drugs, so that they can combat epidemic diseases, such as AIDS, tuberculosis, and malaria. Within this allowance, developing countries are permitted to manufacture generic drugs at affordable prices, instead of paying for expensive patented drugs.

Although compulsory patent licensing allows developing countries to obtain drugs at lower prices, limited demand and low pricing may drive away drug manufacturers to bear the risk of drug development. Under such circumstances, even the granting of patents may not necessarily lead to drug manufacturing.

B. Relevant Information

World Health Organization (WHO)

Established on 7 April 1948, the World Health Organization (WHO) is the world's largest international health organisation. Headquartered in Geneva, Switzerland, WHO has 6 regional offices located in Africa, America, Europe, Eastern Mediterranean, South-East Asia and Western Pacific. WHO is managed by 192 member states of the United Nations through the World Health Assembly. Mrs. Margaret Chan, former Director of the Hong Kong Department of Health, became the Director-General of WHO in 2007.

WHO is an organisation under the United Nations taking charge of health issues and aims to support member states to reduce the spread of diseases and enhance medical care. Through its support in evaluating, planning and implementing national policies on infection control, WHO actualises its ultimate missions of WHO are to help member states improve medical care quality, and the environmental and personal safety for patients, medical staff and individuals working in medical sector, in a cost-effective manner.

WHO led the international society to control spread of the global SARS outbreak in 2003. With 192 member states worldwide and 142 regional offices, WHO has a global ramifying health network to access timely information and provide feedback and updates via its website every day. At the same time, WHO established a team of experts to help coordinate academic and medical teams combating SARS at the frontline through its Global Outbreak Alert and Response Network. WHO also organised clinical telecommunication meetings, enabling health officials from different countries to exchange information. The laboratory network under its purview conducted research on the SARS virus, coordinated network of epidemiologists and clinicians, and provided data on transmission mode and effective measures for patient management. It was the effective leadership of WHO that successfully reduced the harm caused by SARS on public health and world economy.

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Institutions of Disease Control and Prevention in Hong Kong

Food and Health Bureau

The Food and Health Bureau is responsible for policy formulation and resource allocation for health care services in Hong Kong. It provides comprehensive and lifelong health care to every citizen and ensures that no one is denied of adequate medical treatments due to financial problems.

The Government departments under the Food and Health Bureau are: the Department of Health, the Food and Environment Hygiene Department, the Agriculture, Fisheries and Conservation Department, and the Government Laboratory. The primary roles of the Food and Health Bureau in controlling and preventing diseases are: developing, coordinating and implementing policies related to public health and medical care, food safety and environmental hygiene, as well as acquiring and allocating relevant resources to facilitate policy implementation of and service provision.

Department of Health

The Department of Health is the Government's health advisor and agency to execute its healthcare policies and statutory functions. It manages a number of clinics and health centres (including Student/Elderly Health Centres, 32 Maternal and Child Health Centres). In addition to safeguarding the health of the community through promotive, preventive, curative and rehabilitative services, it also takes on four core roles: regulatory, advisory, disease prevention and control, and public health advocacy and promotion.

The Centre for Health Protection (CHP) was officially established on 1 June 2004 under the recommendations by the SARS Expert Committee Report on Severe Acute Respiratory Syndrome. It is under the Department of Health and is responsible for increasing the awareness of Hong Kong citizens on the local measures taken to prevent and control various epidemic diseases (including infectious diseases); investigating cases of contracting various epidemic diseases; monitoring disease communication; and exchanging information related to infections with other countries. Examples of the CHP handling infectious diseases include:

- dealing with and responding to outbreaks of infectious diseases, as well as developing control measures;
- monitoring changes in epidemiology for local and regional infectious

diseases, as well as issuing alerts when appropriate;

- establishing communications with Guangdong Province, Macau and the Mainland of China to exchange information about infectious diseases.

Food and Environment Hygiene Department

With the mission to ensure food safety and to provide a clean and hygienic living environment for the Hong Kong citizens, the Food and Environment Hygiene Department (FEHD) is responsible for food safety control; import control of live food animals; management of food incidents; as well as managing environmental hygiene services and facilities. The FEHD delivers its services through managing the Centre for Food Safety, the Environmental Hygiene Branch and the Administration and Development Branch. The work of the Centre for Food Safety is to ensure that food available for human consumption is wholesome, hygienic, safe and properly labelled; to safeguard public health through testing and control of live food animals; and to advise the public on risk management measures in relation to food and public health matters. In addition, the Expert Committee on Food Safety also advises the Centre in the formulation of food safety measures and the review of food safety standards in light of international practices, trends and developments. The Environmental Hygiene Branch is in charge of a number of matters: including the promotion and overall coordination of environmental hygiene services; the management of public markets and hawker control and licensing matters.

Hospital Authority

The Hospital Authority (HA) is a statutory body responsible for the management of public hospitals and related medical services in Hong Kong. The HA is accountable to the HKSAR Government through the Secretary for Food and Health, which is responsible for formulating overall health policies and monitoring the works of the HA. At present, the HA offers medical treatment and rehabilitation services to all patients through its seven clusters of hospitals, specialist clinics, general out-patient clinics, and community outreach services. According to the Hospital Authority Ordinance, the primary roles of the HA are:

- managing all public hospitals in Hong Kong;
- advising the Government on the needs of the public for public hospital services and on the resources required to meet those needs;
- recommending appropriate policies to the Secretary for Food and Health on fees for the use of hospital services fees;

- planning and construction of public hospitals; and
- facilitating, assisting and participating in the training and development of HA staff and researches related to hospital services.

The HA is the primary provider of medical services in Hong Kong, managing public hospitals and medical institutions, responsible for approximately 90% of in-patient services and 30% of primary care services in Hong Kong. Primary care is the first level of healthcare system, and provides every citizen with preventive healthcare and effective disease treatments. It plays a vital role in enhancing the health of people in Hong Kong.

Since its establishment in 1991, the HA has been playing an important role in Hong Kong's medical system, with dual-track development of the private and public sectors. The HA is committed to improving the quality of patient care and the efficiency in public medical services and to ensuring that no citizen is denied of appropriate medical care due to financial reasons. In addition to providing high quality medical services, the HA also participates in post-disaster emergency rescue and relief; preventing & controlling outbreaks of infectious diseases; strengthening disaster response and coordinating emergency rescue plans.

The HA has also encountered a number of challenges in recent years, such as the trend of ageing population in Hong Kong, change in service demands due to changes in the population structure, increasing prevalence of chronic diseases, service demand of cross-border travellers, understaffing at public hospitals, increasing expectations of patients for medical services, and the advancement of medical technology. All of these directly impact how the HA plans its services and allocates resources.

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7. Web page of Hospital Authority, Hong Kong SAR: <http://www.ha.org.hk/>
8. Website of “MyGovHK”, HKSAR Government. *Overview of the Health Care System in Hong Kong*. Retrieved from <http://www.gov.hk/tc/residents/health/hosp/overview.htm/>

Public Health situations in Hong Kong
(As of the End of December 2013)

All of Hong Kong's main public health indicators, including the average life expectancy at birth and infant mortality rate, are among the best in the world.

Regarding overall medical resources, as at the end of 2013, the total number of hospital beds was about 36,720, comprising 27,400 beds in public hospitals and institutions under the HA, 3,882 beds in private hospitals, 4,617 beds in nursing homes and 821 beds in correctional institutes. The bed-population ratio in Hong Kong was about 5.1 beds per 1,000 population. There were 13,200, 2,300 and 45,800 registered medical practitioners, dentists and nurses, respectively.

Hong Kong adopts a medical system of dual-track development, where both the public and private sectors pull their own weight. The public medical system includes the HA and the Department of Health, while there are a number of hospitals and other types of medical services in the private market. There are 11 private hospitals in Hong Kong, recording approximately 360,000 in-patient discharges in 2013. Hong Kong residents enjoy public medical services that are highly subsidised by the Government, with fees far below the costs. For patients with financial difficulties in paying the medical fees and charges, there are established mechanisms for applying wavier.

In addition to the public clinics, there are non-profit making medical clinics registered under the Medical Clinics Ordinance that generally provide low-cost medical services. At the end of 2013, there were 115 medical clinics registered under this ordinance. Traditional Chinese medicine is also an integral part of Hong Kong's medical services. The Chinese Medicine Ordinance was passed by the Legislative Council in July 1999 to establish a statutory regulatory framework to control the practice, use, manufacture and trading of Chinese medicines. Under the Chinese Medicine Ordinance, the Chinese Medicine Council of Hong Kong was set up to be responsible for implementing various regulatory measures. As at the end of 2013, there were approximately 6,700 registered Chinese medicine practitioners, and about 2,700 listed Chinese medicine practitioners and Chinese medicine practitioners with limited registration in Hong Kong. As at December 2012, 17 Chinese Medicine Centres for Training and Research were operated by non-governmental organisations in tripartite mode of collaboration among the HA, non-governmental organisations and local universities.

References:

1. Website of “MyGovHK”, Information Services Department, HKSAR Government. *HONG KONG: THE FACTS, Public Health*. Retrieved from http://www.gov.hk/tc/about/abouthk/factsheets/docs/public_health.pdf
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Summary of Public Health Situations in China

The health of Chinese citizens has been continuously improving. The average life expectancy for Chinese citizens reached 74.8 years in 2010, with 72.4 years for male and 77.4 years for female. Meanwhile, maternal mortality rate dropped from 51.3 per 100,000 live births to 26.1 per 100,000 live births in 2011. Infant mortality rate and the under-five mortality also continue to decrease: with the infant mortality rate dropping from 29.2% in 2002 to 12.1% in 2011, and the under-five mortality from 34.9% in 2002 to 15.6% in 2011.

China has established a medical and healthcare system that covers both urban and rural residents, comprising a public health service system, a medical service system and a medical security system. China's health financing structure is also constantly being optimised. From 1978 to 2011, China's total health expenditure grew at an average annual rate of 11.32%. As at the end of 2011, there were totally 954,000 medical and healthcare institutions nationwide, with licensed doctors (assistants) and hospital beds reaching 2,466,000 and 5,160,000 respectively. As can be seen, there is continuous increase in healthcare resources.

In addition, there has also been a significant improvement in the utilisation of medical and healthcare services. In 2011, medical institutions throughout the country hosted 6.27 billion outpatient visits, as compared with 2.15 billion in 2002; and recorded 150 million in-patient discharges, as compared with 59.91 million in 2002.

China's reform of its medical and healthcare systems began in the 1980s. In March 2009, China promulgated the Opinions on Deepening Reform of the Medical and Healthcare Systems, with the goal to provide basic public medical and healthcare to the whole nation so that basic medical and healthcare services access is granted to every citizen. Meanwhile, China's basic medical insurance system aims at covering both urban and rural residents: In 2011, more than 1.3 billion people had joined the basic medical insurance for working urban residents, the basic medical insurance for non-working urban residents, and the new type of rural cooperative medical care. The coverage extended from 87% in 2008 to over 95% in 2011.

The accelerating industrialisation, urbanisation and ageing population in China have been accompanied by the rapid and continuous rise in the prevalence of chronic diseases and overall mortality. At present, about 260 million people have been diagnosed of chronic diseases. Chronic diseases account for 85% of total deaths and 70% of total disease burden. In 2010, the China National Program for Chronic Disease

Prevention and Treatment (2012-2015) was issued to formulate measures to prevent and control chronic diseases. It also launched a project for building nation-level demonstration areas of controlling chronic diseases in order to strengthen national capacities for the comprehensive control of chronic diseases.

References:

1. National Health and Family Planning Commission of the People's Republic of China: <http://www.nhfpc.gov.cn/>
2. The State Council Information Office of the People's Republic of China. (2012, December). *White paper on the medical and health services in China*. Retrieved from <http://www.scio.gov.cn/zfbps/ndhf/2012/Document/1261878/12618178.htm>.

Elderly Health Care Voucher

The Elderly Health Care Voucher Pilot Scheme was initially launched on 1 January 2009 by the government for a period of three years to try out a new concept of enhancing the provision of primary healthcare service for the elderly. Under the Pilot Scheme, five vouchers of \$50 each were provided to each elder aged 70 or above annually. The Pilot Scheme aims to supplement the existing public healthcare services (e.g. General Out-patient and Specialist Out-patient services) by providing financial incentive for elders to choose private healthcare services that best suit their needs, including preventive care. As an expansion to the existing public healthcare services, the Scheme provides elders with additional choices.

Public healthcare services will continue to be made available to elders in need after the introduction of the Elderly Health Care Voucher. In addition, by encouraging elders to seek consultation and establish a closer relationship with private doctors who are familiar with their health conditions, the Scheme also helps promote the concept of a family doctor.

Based on the result of the Interim Review, the Government decided to extend the Pilot Scheme and increased the annual voucher amount for each eligible elder from \$250 to \$500 in 2012. In response to the positive feedback from the community, from 1 January 2013, the Government has increased the annual voucher amount to \$1,000. From 2014, the Scheme has been converted from a pilot project into a recurrent support programme for the elderly and the annual voucher amount for eligible elders has also been increased to \$2,000. Unspent vouchers are allowed to be carried forward and accumulated by an eligible elder, subject to a ceiling of \$4,000 to encourage elders to make more frequent use of the vouchers for primary care services including both curative and preventive cares.

Reference:

1. Website of “MyGovHK”, HKSAR Government. *Background of Elderly Health Care Voucher Scheme*.

Retrieved from http://www.hcv.gov.hk/tc/pub_background.htm

Common Pathogens

Infectious diseases are diseases caused by pathogens invading the human body. The majority of pathogens can be classified into six categories, namely bacteria, viruses, fungi, protozoa, parasites and prions.

Bacteria are ubiquitous unicellular organisms of various shapes, such as the bacteria causing tuberculosis, cholera, diarrhoea and syphilis. Both bacteria and their toxins can directly cause diseases.

Viruses are sub-microscopic particles that are smaller than bacteria. They are made up of genetic materials enveloped in a protein coat. Different viruses vary in shape and size. Unlike bacteria, viruses need a host to reproduce. Viruses are able to reproduce within bacteria, plants and animal cells. When a virus infects a host cell, it synthesises the genetic materials and proteins required to assemble a complete viral particle. Newly synthesised viral particles will be released from the cell to infect other host cells.

Fungi can be either unicellular or multi-cellular. While most fungi can survive independently, some are parasitic to plants and animals, including human beings. Examples of fungal diseases include tinea pedia (Athlete's foot), coleitis (vaginitis) and nail infection.

Protozoa are unicellular eukaryotes which usually cause tropical diseases, such as malaria and amoebic dysentery.

Parasites survive by parasitism, feeding on nutrients provided by the host. Some parasites cause disease by preventing the host from absorbing nutrients normally. There are also parasites that live in the internal organs of the host, and cause damages to the organs.

Prions, also known as proteinaceous infectious particles, are purely protein particles that can cause other proteins to lose their functions by altering their structures. Prions can affect neural tissues of the host, causing diseases such as Creutzfeldt-Jakob disease and Mad Cow Disease.

Reference: Extracted and adapted from Liberal Studies Web-based Resource Platform.
Relevant Concepts for New Secondary Liberal Studies Curriculum: infectious diseases.
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Nutrition Labelling Scheme

The Food and Drug (Composition and Labelling) (Amendment: Requirements for Nutrition Labelling and Nutrition Claim) Regulation 2008 (Amendment Regulation) signifies a new era of food labelling in Hong Kong as most pre-packaged food sold in Hong Kong will have nutrition labelling beginning 1 July 2010. A Nutrition Labelling Scheme (the Scheme) aims to assist consumers to make informed food choices, encourage food manufacturers to apply sound nutrition principles in the formulation of foods, and regulate misleading or deceptive labels and claims. Without the Scheme, provision of nutrition information is not mandatory and consumers may not know the nutrient contents of many products.

Both “nutrition labels” and “nutrition claims” are covered in the Scheme: nutrition labels provide consumers with information on nutrient values of the food so that they can make use of the information to choose foods that are good for their health. Consumers can find nutrition information presented in a “1+7” form (i.e. the values of energy plus seven specified nutrients – protein, total fat, saturated fat, trans fat, carbohydrates, sugars and sodium) on nutrition labels, and are therefore able to make healthier choices. Products with very small packages; foods that contain insignificant amount (nearly zero) of energy and specified nutrients (such as tea, spices and distilled water); as well as raw meat, fresh fruits and vegetables without any addition of ingredient are exempted from the nutrition labelling requirements.

Nutrition Claims are eye-catching descriptors found on food packages. They can serve as a quick reference for selected nutrition information. Setting conditions for nutrition claims standardise the meaning of various claims, making them trustworthy for consumers. Nutrition claims may highlight the content of certain nutrients (e.g. “low fat”, “high fibre”, etc.), or tell consumers how the nutrient content of a particular food product differs from another similar food (e.g., “lower cholesterol”), or describe the physiological function of a nutrient which is present in the food (e.g. “calcium builds strong bones”). These nutrition claims will be regulated starting 1 July 2010 and they must meet certain specified conditions before making the claims.

References:

1. Web page of the Food and Environment Hygiene Department, Hong Kong SAR.
NutriGet - Introducing Nutrition Labelling Scheme.
 Retrieved from http://www.cfs.gov.hk/tc_chi/multimedia/multimedia_pub/files/FKL41_C_2010-07-02.pdf

2. Extracted and adapted from: Education Bureau. (2011). *Science, Technology and the Environment (Chapter 2)*, 29-31.
3. Web page of the Food and Environment Hygiene Department, Hong Kong SAR. *Food and Environment Hygiene Department Annual Report 2009*.

Retrieved from http://www.fehd.gov.hk/tc_chi/publications/annualrpt/2009/2.html

Food Additives

A food additive is any natural or synthetic substance intentionally added to food in the processing, packaging, transport or storage of food for certain technological purposes. According to the Laws of Hong Kong, food additives do not include nutrients such as vitamins and minerals used for enriching food, or seasonings like salt, herbs and spices. Food additives can be used to enhance food safety and quality through inhibition of microbial growth, extend the shelf-life and improve the texture and thickness of food by protecting against oxidative deterioration so that food waste can be reduced. Food additives facilitate the manufacture, processing, packaging, transport and storage of food, thus rendering consumers a vast choice of reasonably-priced food with consistent quality. There are many types of food additives and the commonly used ones include preservative, antioxidants, sweeteners, colouring matters, flavour enhancers, thickeners and emulsifiers.

Excessive usage of food additives may affect consumer health. According to recommendations from the Centre for Food Safety, the use of food additives by manufactures is justified only when such use has an advantage, does not present any hazard to consumer health, does not deceive the consumer, and serves one or more of the following technological effects, and only where these effects cannot be achieved by other means which are economically and technologically practicable:

- to preserve the nutritional quality of food
- to provide foods with necessary constituents manufactured for groups of consumers having special dietary needs
- to enhance the effectiveness in keeping food quality and stability, or to improve the colour, odour and taste of food
- to facilitate the processing, packaging, transport and storage of food, provided that the additives are not used to mask the effects of using faulty raw materials or undesirable practices (including unhygienic) of techniques during the course of any of these activities

The usage and labelling of food additives by food manufacturers are subject to the regulatory requirements under the Public Health and Municipal Services Ordinance (Chapter 132 of the Laws of Hong Kong). To ensure that food is suitable for human consumption, food manufacturers should prepare food in accordance with the above principles to prevent food additive abuse.

Reference:

1. Web page of the Centre for Food Safety, Food and Environment Hygiene Department. *KNOW MORE ABOUT FOOD ADDITIVES*. Retrieved from http://www.cfs.gov.hk/english/multimedia/multimedia_pub/files/know-more-additive_e.pdf

Ebola Virus Disease

Ebola virus is one of the viruses that can cause viral hemorrhagic fevers. This virus is probably transmitted from wild life to people through human contact with infected fruit bats, or through intermediate hosts (such as monkeys, apes, or pigs that have themselves become infected through contact with bat saliva or faeces). This is then followed by human-to-human transmission. It is mainly spread through direct contact (through broken skin or mucous membrane) with the blood, secretion, organs and other body fluids of a person who is infected with Ebola, or through indirect contact with such fluids contaminated environments.

The recent epidemic in West Africa (first batches of cases were reported in March 2014) is the biggest and most complicated outbreak since Ebola virus was first discovered in 1976. However, medical professionals have yet to discover an effective and popular treatment. With an average fatality rate of 50% or higher, Ebola virus spreads via blood, body fluids and direct contact with someone who died from Ebola. The continuous outbreak and the increasing number of infected cases are mainly attributed to the inability to confirm the natural reservoir of Ebola viruses and Africa's inadequate health care systems. In addition, Ebola virus can also be spread to other countries by tourists who are infected with Ebola. As of 10 February 2015, 9 countries reported 23,034 suspected cases which have resulted in 9,268 deaths since the outbreak of Ebola in West Africa.

The WHO declared on 8 August 2014 the Ebola outbreak a Public Health Emergency of International Concern. The Hong Kong Government subsequently announced its "Preparedness and Response Plan for Ebola Virus Disease" on 20 August 2014, setting out in detail the Government's preparedness and response plan for the disease. The Government also activated the Alert Response Level on the same day. Community involvement is vital in controlling the epidemic, which depends on fast and effective case management, monitoring and tracking, advanced and dependable laboratory services, safe burial and social mobilisation.

References:

1. Centers for Disease Control and Prevention. *Ebola (Ebola Virus Disease)*. Retrieved from <http://www.cdc.gov/vhf/ebola/>
2. World Health Organization. *Ebola Virus Disease*. Retrieved from <http://www.who.int/csr/disease/ebola/zh/>
3. Panel on Health Services, the Legislative Council. (2014, 17 November). CB(2)242/14-15(03). *Control and Preventive Measures of Ebola Virus Disease*. Retrieved from <http://www.legco.gov.hk/yr14-15/chinese/panels/hs/papers/hs2014>

Influenza

Influenza (flu) is an acute illness caused by influenza viruses, which mainly infect the respiratory tract. It can also cause complications such as pneumonia, myocarditis and encephalitis. Globally, influenza has an annual prevalence rate ranging from 5% to 10% in adults, and 20% to 30% in children. Influenza mainly causes hospitalisation and death in high risk groups (including infants, the elderly or patients with chronic diseases). In Hong Kong, seasonal influenza is usually more common in periods from January to March and from July to August.

Influenza viruses can be classified into A, B and C types. The virus is extremely versatile, so that the popular strains may change every year. Such change of the virus arises from changes in the viral antigens. Surface antigens could be regarded as structures on the outer coating of the virus. It determines the infectivity of viruses, and the response of the human immune system. There are two main types of surface antigens of influenza A virus, namely H (haemagglutinin) and N (neuraminidase), which subsequently produce different virus strains (i.e. subtypes). Seasonal influenza is usually caused by H1N1 and H3N2 subtypes of the influenza A virus.

The variants of influenza A H1N1 and H3N2 appear every year and explain why reformulation of influenza vaccine is required every year to combat the prevalent virus strain. A mismatch between the prevalent influenza virus strain and the vaccine may reduce the effectiveness of the vaccine, but it still has a certain degree of mutual protection, and reduces the risk of hospitalisation and death (for high risk groups in particular). Therefore, vaccination is still an important means to prevent influenza.

Influenza A H3N2 caused an outbreak in Hong Kong in early 2015. There was an observable change in the surface antigens compared with the 2014 prevalent strain, so that the protection from the old vaccine was reduced. Also, people's antibodies level against the new strain is low. These factors contributed to the serious conditions of certain patients. During the period from 2 January 2005 to 21 March 2005, there were more than 400 deaths related to seasonal influenza.

Significant changes in the surface antigens of influenza viruses may cause influenza pandemic (refer to the concept "infectious diseases and epidemics" for the explanation on "pandemic"). There is no regular pattern of influenza pandemics. The last four outbreaks were in 1918, 1957, 1977 and 2009 respectively. An influenza pandemic is usually associated with a large number of infections and severe cases, resulting in relatively high fatality rates and significant social and economic impact.

For example, the new H1N1 influenza outbreak in 2009 (i.e. the Human Swine Influenza) rendered the World Health Organization to declare a global pandemic period in August 2010.

References:

1. Web page of the Centre for Health Protection, Department of Health, Hong Kong SAR. *Influenza*.
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4. Surveillance & Epidemiology Branch, Centre for Health Protection, Hong Kong SAR. *The update on severe seasonal influenza cases*. (as of 1200 PM, 15 February, 2015).
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5. Panel on Health Services, the Legislative Council. (2015, 16 February). *Control and Preventive measures of seasonal influenza*. CB(2)818/14-15(03).
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Severe Acute Respiratory Syndrome

Severe acute respiratory syndrome (SARS) is a respiratory infection caused by a corona virus (SARS-CoV). SARS is predominantly transmitted through close human-to-human contact, especially via respiratory droplets produced when an infected person coughs or sneezes. Symptoms of SARS usually appear within 2 to 7 days after contracting the disease, but the incubation period can be up to approximately 10 days.

The initial symptoms of SARS are influenza-like. Patients with SARS usually begin with fever, which is often high (38 degrees or above), and sometimes associated with chills, rigors, headache, malaise, muscle pain or even diarrhoea. At the onset of illness, some patients may only have mild respiratory symptoms. After a few days, symptoms of lower respiratory tract infection may follow, including cough without sputum and difficulty in breathing. In around 10% of patients, the illness may rapidly progress to respiratory failure requiring intensive medical care. Symptoms can be more variable among elderly patients.

Cases of severe acute respiratory syndrome have been reported globally since March 2003. Hong Kong reported 1755 infected cases, resulting in nearly 300 deaths. On 23 June 2003, Hong Kong was removed from WHO's list of "SARS-infected Areas". Severe acute respiratory syndrome was added to the list of infectious diseases under the Hong Kong Quarantine and Prevention of Disease Ordinance, giving the Department of Health the power to effectively execute control measures.

Although no case of SARS has been reported since 2005 globally, there has been no confirmation that the disease has been completely eradicated. There is no vaccine currently available for SARS. Good hygiene remains the most effective way to minimise the risk of contracting and spreading the disease. After the SARS outbreak, the public's health awareness has been raised. The public sees the importance of a communication mechanism and preventive measures of diseases. Also, the risk management and responsiveness of government departments have been strengthened.

References:

1. Web page of the Centre for Health Protection, Department of Health, Hong Kong SAR. (2007, 23 November) *Severe Acute Respiratory Syndrome*. Retrieved from <http://www.chp.gov.hk/tc/content/9/24/47.html>

2. Department of Health, Hong Kong SAR. *Preventing Severe Acute Respiratory Syndrome*, HKSAR Government.
Retrieved from www.chp.gov.hk/files/her/sars.ppt

Relationship between Exercise and Health

The pattern of epidemic diseases has changed due to the advancement of medical technology and increased concern about public health. Just a century ago, the leading causes of death in many countries were infectious diseases, such as poliomyelitis, smallpox, influenza and tuberculosis. However, it has been replaced nowadays by cardiovascular diseases, diabetes mellitus, cancers and stroke, which are caused by unhealthy lifestyles and lack of exercises.

Over the past few decades, owing to industrialisation and technological advancement, there is an increasing number of people working in service, clerical and other professional occupations. These require much less energy consumption than physical labour in traditional societies. People's leisure time is commonly occupied by sedentary activities such as watching television and surfing the Internet. No matter they are at home or at work, people nowadays lead a sedentary lifestyle in which machines and labour-saving devices have freed them from physically demanding tasks. This sedentary lifestyle reduces energy consumption and leads to overweight and obesity, and subsequently increases the mortality rate.

Regular exercise is beneficial to health and body functions. The benefits include burning of calories, reduction in body fat, improving cardiovascular health, lowering blood pressure, reducing risk of diabetes mellitus, osteoporosis and certain cancers. Physical activities also benefit people psychologically. Exercises can reduce or relieve stress. When the intensity of physical exercises reaches a certain threshold, endorphins will be released in the brain. Endorphins are substances similar to natural morphines, with molecular structure similar to morphines. Endorphins are also known as "happiness morphines", which generate feelings of happiness and well-being. Endorphines are transmitted in human body and help people relax, control emotion and reduce stress.

Similar to physical exercises, leisure activities are also beneficial to mental health. People have an inborn desire for playing, and seeking recreational experiences which give them feelings of pleasure. Sociologists believe that an individual can arrive at a positive mental state through participating in leisure activities (e.g. family trip or cycling). It is also found that people who are engaged in leisure activities and hobbies find it easier to maintain a state of holistic health and avoid physical and mental burnout.

Reference:

1. Education Bureau, Hong Kong SAR. *Health Management and Social Care (Secondary 4-6) Learning and Teaching Materials*.
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Diet and Nutrition

Nutrients are biochemical substances that come from ingested solid or liquid food. Nutrients can be classified into macronutrients and micronutrients. Macronutrients can be classified into three groups: carbohydrates, protein and fat. They are responsible for building and maintaining body tissues and providing energy. Micronutrients are mainly vitamins and minerals responsible for moderating cell functions. People do not need too much of micronutrients to maintain health.

Sufficient intake of nutrients in the diet is essential for growth and development of our body and prevention of diseases. A balanced diet is a diet which contains the essential nutrients and energy content in appropriate amount. Most importantly, energy intake should vary to suit the specific needs of different ages, heights, body weights and intensity of physical activity. Besides, although dietary fibre cannot be digested or absorbed by human body, it can help the peristalsis of intestines, and therefore is an essential component of balanced diet. An unbalanced diet will lead to malnutrition.

Malnutrition could mean nutrient deficiency or over-nutrition. Nutrient deficiency refers to deficiency in basic nutrients such as proteins or vitamins. There are many causes of nutrient deficiency, and mostly are due to insufficient intake of nutrients, chronic diseases and unhealthy eating habit. Nutrient deficiency is particularly severe in poor countries. It also relates to living standard, environmental factors and lack of daily necessities (e.g. food, housing and medical services). Although nutrient deficiency seldom directly leads to death, it increases disease prevalence and mortality rate. For example, vitamin deficiencies cause scorbutus, beriberi, rickets, keratomalacia, pellagra. This also includes diseases caused by mineral deficiency. Deficiencies in trace elements such as iron, zinc and iodine can also lead to deficiency syndromes. According to the WHO, vitamin A deficiency caused 500,000 children blindness in 1995. The aforementioned diseases are most prevalent in developing countries.

Obesity and overweight due to over-nutrition are increasingly common in developed countries. These problems are associated with non-infectious diseases such as cardiovascular diseases, coronary heart diseases, diabetes mellitus and cancers. For example:

- Low dietary fibre intake increases the risk of colon cancer.
- Low fruit and vegetable intake increases the prevalence of stroke and heart diseases.

- High intake level of total fat, saturated and polyunsaturated fat, carbohydrate and sugar poses higher risks of obesity, heart diseases, stroke and other cardiovascular diseases.

References:

1. Department of Health EatSmart Website, Hong Kong SAR:
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2. Central Health Education Unit, Department of Health, Hong Kong SAR. *Two Plus Three Every Day*.
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3. Centre of Nutrition Information, Hospital Authority, Hong Kong SAR.
<http://www.ha.org.hk/dic/home.html>
4. Education Bureau, Hong Kong SAR. *Health Management and Social Care (Secondary 4-6) Learning and Teaching Materials*.
Retrieved from <http://www.edb.gov.hk/tc/curriculum-development/kla/technology-edu/resources/hmsc/resource-kit.html>
5. World Health Organization. (2013). *WHO issues new guidance on dietary salt and potassium*.
Retrieved from http://www.who.int/mediacentre/news/notes/2013/salt_potassium_20130131/en/

Food Safety

To enforce food safety is to ensure that food is hygienic and safe for consumption in the processing, storage and distribution of food. The aims are lowering risk of diseases and prevent food poisoning. Obtaining sufficient amount of safe and nutritious food is the key to maintaining life and health. Approximately 2 million people in the world die from unsafe food annually, the majority being children. Food carrying disease-causing bacteria, viruses, parasites or chemical substances may cause various diseases, ranging from diarrhoea to cancer. Policies and measures on food safety should cover the entire food supply chain, including every single link between production and consumption.

Food safety for humans is constantly being challenged by new threats. Such challenges primarily arise from the changes in food production, food distribution and consumption methods, as well as environmental changes, emergence of new pathogens and antimicrobial drug resistance, all of which bring challenges to food safety system. Meanwhile, the increasing popularity of tourism and trading has increased the ease of transmission of contaminated food across different places. Globalized food supplies pose great challenges to domestic and cross-border food safety systems.

It is a shared responsibility of the international community to tackle the issue of food safety, and it requires concerted efforts from the entire food production chain – including farmers, manufacturers, wholesalers and retailers, as well as consumers. Enforcing food safety is important, as foodborne diseases would cause burden to the medical system, damage national economy, tourism and trade, thus hindering social and economic development.

The World Health Organization recommends that all governments should make food safety a public health priority. This is because they play a pivotal role in developing policies and regulatory frameworks, establishing and implementing effective food safety systems. The systems ensure that food producers and suppliers along the whole food chain operate responsibly and supply safe food to consumers.

Take the substandard lard incident in Taiwan as an example. This food safety incident involved a wide spectrum of parties and products. Also, the food products affected are those commonly consumed by the public and widely available in the market. Therefore, the Food and Health Bureau (FHB) is considering making regulations to safeguard safety of edible oil by requiring traders who import, sell or

produce edible oil to ensure that the oil complies with the relevant requirements. Any trader who fails to do so commits an offence. FHB suggests that the legislation should require importers of edible oil to provide an official certificate issued by the place of origin for inspection by the FEHD, as a proof of the oil's compliance with the relevant requirements. Copies of the certificate must also be provided by edible oil importers to their downstream distributors, retailers or food premises for FEHD's inspection.

References:

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Part III: Learning and Teaching Exemplars

Liberal Studies adopts an issue-enquiry approach in selecting curriculum content and teaching strategies. Teachers have to consider the learning and teaching focuses involved in the “questions for enquiry” in the Curriculum and Assessment Guide when choosing appropriate issues, as well as to design and arrange classroom activities for students to explore.

This part provides four exemplars for teachers’ use. All these exemplars are related to the learning and teaching focuses of this module, and some would also touch on other modules. Teachers are advised to read Part A of each exemplar to understand its overall design rationale, the suggested lesson time and the teaching objectives. Teachers are also advised to note the basic concepts these exemplars involved and the learning experiences the students have acquired in the junior secondary curriculum. The above information helps teachers estimate the lesson time required and adjust the breadth and depth of contents based on the students’ progress.

Part B of each exemplar introduces the flow of learning and teaching, and suggests different learning and teaching strategies for teachers to adopt. These include reading before or after class, data (including texts, cartoons and figures) analysis, group discussion, mock forums, role plays, debates, as well as direct teaching and summarising by teachers. In order to save teachers’ time in the preparation of teaching materials, most classroom activities are accompanied by relevant worksheets or reading materials. As to homework, the main ideas for the design of questions are also provided for reference by teachers when reviewing students’ work. Each of the above sets of materials is included in the last part of each exemplar as appendix. Teachers may consider distributing copies of these appendices to the students.

These four exemplars are only for reference in the design of teaching issues and activities, and are not supposed to be used without any adaptations in the classroom. When using these exemplars, teachers are advised to incorporate them into the carefully planned school-based teaching progress, so as to use lesson time effectively for various learning and teaching activities such as dealing with learner diversity, explaining students’ work performance and arranging internal assessment.

Senior Secondary Liberal Studies

“Public Health” Module

Learning and Teaching Exemplar (1)

People’s understanding of diseases and international collaboration through the case of Ebola Virus Disease (EVD)

A. Basic information of the exemplar

Topic	People's understanding of diseases and international collaboration through the case of Ebola Virus Disease (EVD)
Relevant modules, themes and issues for enquiry	<p><u>Leading</u> Module 5 : Public Health ; Theme 1: Understanding of public health</p> <ul style="list-style-type: none"> ● How did people understand the causes of diseases in the past? Was their understanding scientific? ● How is people's understanding of health affected by economic, social and other factors? ● How is people's understanding of public health affected by the development of science and technology? ● In what ways is people's understanding of public health affected by health information, social expectations, personal values and beliefs in different cultures? <p><u>Related</u> Module 4: Globalization</p> <ul style="list-style-type: none"> ● How do people from different parts of the world react to globalization? Why?
Overall design rationale	Focusing on the challenges and opportunities to public health in the international community brought about by Ebola virus disease (EVD), this exemplar aims at taking Ebola as an example to guide students to know that there are subtle differences in people's understanding of public health around the world and further exploring the effects of globalization on the control of infectious diseases. During the enquiry process, students are also required to analyse the relationship between the development of public health and globalization, as well as the responses from different countries or organisations (such as developing countries, developed countries, and the World Health Organization) to the threats posed by infectious diseases.
Time required	3 lessons (40 minutes per lesson), around 120 minutes in total
Teaching objectives	<p>Knowledge:</p> <ul style="list-style-type: none"> ● To understand the meanings of infectious diseases and epidemic diseases and the responses from different sectors of the society. ● To learn about the correlation between the spread of infectious diseases and globalization.

	<ul style="list-style-type: none"> ● To understand the importance of promoting international collaboration for controlling the spread of infectious diseases. <p>Skills:</p> <ul style="list-style-type: none"> ● To generalise the relevant concepts or knowledge based on the data obtained through issue-enquiry. ● To apply the relevant knowledge and concepts when studying contemporary issues. ● To interpret figures or textual data from multiple perspectives. ● To be able to construct arguments in a concise, logical and systematic manner. <p>Values and attitudes:</p> <ul style="list-style-type: none"> ● To treat the opinions and values of others in an open and accommodating manner. ● To appreciate and respect different opinions in a pluralistic society. ● To show care and concern to global affairs and fulfil the obligations of global citizens.
Basic concepts for application	<p>Infectious diseases and epidemics, public health, medical technology, health expenditure, disease prevention, disease diagnosis and treatment, health, drug patenting, scientific development and public health, health promotion</p> <p>(If students are not familiar with Hong Kong's preventive measures or policies for health protection, teachers are advised to go through the teaching materials of Studying public health policies through Avian Influenza first or to brief students on relevant information for them to gain a preliminary understanding.)</p>
Relevant learning experience at junior secondary levels	<p>Having studied various subjects in the Science Education and Technology Education Key Learning Areas, students at junior secondary levels are expected to have acquired a preliminary understanding about public health, which includes the main factors affecting personal health and how to keep healthy; common diseases in Hong Kong, their causes and preventive measures etc. In addition to the learning experience during classes, students may also gain access to knowledge of public health in their daily lives. Therefore, students should have some basic understanding of this issue.</p>

B. Design of classroom learning and teaching

Lesson	Learning and teaching strategies and flow
1	<p><u>Lead-in (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Motivate students to study this issue and explain the concepts of <u>infectious diseases and epidemics</u> by asking them to give examples of infectious diseases that received much attention in recent years. ● Subsequently, students may complete the relevant worksheets with reference to the sources in Appendix 1, so as to have an overview of Ebola virus disease (EVD). In this activity, students are not required to explore the trend and causes in details. If the lesson time is insufficient, consider verbal rather than written responses from students.
	<p><u>Students reading data sources, followed by teacher's elaboration (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Distribute Sources A to D to students for reading in class (Appendix 2). Brief students that these materials are related to the development of EVD first. Ask students to pay attention to the relationship between the development of EVD in West Africa and the local public health conditions. ● It is not necessary to make elaboration on the sources in details. Remind students to gain a basic understanding about the relationship among the public health conditions in West Africa and local customs and culture, economic development, medical technology etc.
	<p><u>Group discussion and presentation, and teacher summary (around 25 minutes)</u></p> <ul style="list-style-type: none"> ● Divide students into groups, and distribute worksheets for discussion (Appendix 3). Instruct students to integrate the sources in Appendix 2 with their personal understanding on infectious diseases, and sort out the possible reasons for the spread of EVD in West Africa and their correlation with globalization on their worksheets. ● Remind students to read and apply the relevant basic concepts (such as the three stages referred to in "<u>Disease Prevention</u>" and <u>Scientific development and public health</u>, etc.) to complete the worksheets. ● Students present the discussion results (the number of presenting groups may vary depending on the lesson time). ● Point out the reasons for the serious effects caused by EVD in certain West African countries according to students' discussions and their own knowledge. For example:
	<p>➤ As a result of poor economic development, limited treasury</p>

Lesson	Learning and teaching strategies and flow
	<p>reserves and frequent civil wars, some West African countries are not in a position to allocate sufficient resources for public health to prevent the outbreak of Ebola. These countries failed to carry out the first stage of prevention properly, and the public health awareness was at a relatively low level.</p> <ul style="list-style-type: none"> ➤ The cultures and customs of some African villages, including asking witch doctors instead of using modern technology and medicines to treat diseases as well as following the custom of kissing bodies of the deceased in traditional funerals, fuelled the spread of EVD. These countries thereby failed to carry out the second stage of prevention properly. ➤ Many West African countries also fell behind with their development of education and scientific research. It is therefore difficult for them to allocate adequate resources to conduct research on medical technology for Ebola prevention, diagnosis and treatment. ➤ In the context of globalization, there are frequent contacts among different parts of the world. Transport such as aircrafts, vessels, railways not only allows people to migrate, travel, study abroad and do business around the world, but also creates channels for EVD to be spread from West Africa to other regions. <p><u>Briefly explain the arrangements for the writing activity in the next lesson (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Distribute the after-class reading materials concerning the responses of various countries to viral transmission (Appendix 4) to students. Ask students to read and underline the key points (such as the responses of different countries or institutions) and bring the materials back for the next lesson. For less motivated students, ask them to read the materials in groups and share their findings with each other in class in the next lesson.
2	<p><u>Lead-in (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Briefly introduce the responses of different countries to EVD based on Source D. ● Students share their findings on the responses of certain countries so as to understand the varying degree of development in public health and economy among different regions. <p><u>Writing activity and teacher summary (around 30 minutes)</u></p> <ul style="list-style-type: none"> ● Divide students into groups, and assign each group a task of writing a

Lesson	Learning and teaching strategies and flow
	<p>letter to the relevant institutions, organisations or countries, asking them to help West African countries combat the EVD crisis.</p> <ul style="list-style-type: none"> ● All the groups play the role as ordinary people in West African countries that are affected by EVD. Due to the impoverished economies, the lag in <u>scientific development and public health</u> and insufficient medical facilities in their own countries, they would like to write a letter of request to enlist help from the outside. ● The letters can be presented in bullet points and written on the worksheets (Appendix 5). ● Ask the following questions to help students think: <ul style="list-style-type: none"> ➤ Which stakeholders can help you? What are the difficulties they may encounter? (Recipients include developed countries, pharmaceutical companies, the World Health Organization and international non-governmental organisations.) What effects does globalization bring to you? ➤ Students may refer to and apply the relevant basic concepts in the letters (such as “<u>Public Health</u>”, “<u>Health</u>”, “<u>Health Expenditure</u>”, “<u>Drug Patenting</u>”, “<u>Disease Prevention</u>”, “<u>Health Promotion</u>”, “<u>Disease Diagnosis and Treatment</u>”, “<u>Medical Technology</u>”, “<u>Infectious Diseases and Epidemic Diseases</u>”). ● All groups should discuss the issues before writing the letter, and then present their findings. ● After students’ presentation, make a summary based on the key contents and their own perception of EVD, or otherwise invite students to do so. Presentation may focus on the responses of different stakeholders to EVD and whether interdependencies or conflicts exist among the stakeholders, for example: <ul style="list-style-type: none"> ● With the relatively high level in <u>scientific development and public health</u>, developed countries possess advanced <u>medical technology</u> to perform <u>disease prevention</u> as well as <u>disease diagnosis and treatment</u> in a good manner. However, their main concern is the health of their own citizens and the prevention of EVD transmission in their own countries. Therefore, <u>disease prevention</u> (especially the first stage prevention) is their primary concern. ● Pharmaceutical companies mainly focus on economic profits and protecting the <u>drug patenting</u> they hold. Drugs for the treatment

Lesson	Learning and teaching strategies and flow
	<p>of EVD have a limited market and require a large amount of investment in exchange for little return. Pharmaceutical companies are therefore reluctant to devote resources for drug development in order to combat EVD.</p> <ul style="list-style-type: none"> ● From the perspective of global and overall public health, the World Health Organization also hopes to bring the spread of EVD to the attention of its member states, and ask developed countries to give a helping hand to West African countries so that they can promote the development of public health, and address the inequality issues among different countries. ● While international non-governmental organisations (for example, Médecins Sans Frontières) also want to help, they find it difficult to provide a great deal of support due to limited resources. These organisations actively call on and organise volunteers to offer assistance, being dedicated to secure more resources and aids. They also aim to raise public health awareness of the locals through education and <u>health promotion</u>. <p><u>Briefly explain the arrangements of discussion in the next lesson (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Summarise the key points of the lessons as: understanding the correlation between infectious diseases and different countries; considering the demands of different organisations / countries; and fully balancing the interests or concerns of various stakeholders. ● Ask students to read materials relating to how the Hong Kong SAR Government prevents EVD and how the Nigerian Government combats EVD (Appendix 6). Based on the roles assigned (such as the Controller for the Centre for Health Protection, the Secretary for Education, the Director of Immigration, the Hospital Authority Chairman, as well as the representatives from the medical sector, the business sector and the tourism sector), students are required to collect information about the prevention and treatment of EVD (such as the opinions or demands of, and responsibilities assumed by such stakeholders) in groups for their presentation in the next lesson (for less motivated students, ask them to read these materials and share their findings with each other in the next lesson).
3	<p><u>Lead-in (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Invite several students to briefly report on the information they collected before the class.

Lesson	Learning and teaching strategies and flow
	<ul style="list-style-type: none"> ● Based on students' reports and their personal understanding, supplement information to allow students to understand the respective stakeholders and the current development of EVD (for example, the preventive measures taken by the Government even though Hong Kong has not been affected by EVD for the time being; what Hong Kong can learn from certain West African countries' successful experience in combating EVD). <p><u>Role play and teacher summary (around 30 minutes)</u></p> <ul style="list-style-type: none"> ● Guide students to reflect on how Hong Kong should respond to the threats posed by EVD and learn from the successful experience of others. ● Scenario: The HKSAR Government is going to convene an internal meeting to discuss the spread of EVD. Students play different roles and discuss the relevant contingency plans during the meeting. ● Students play different roles, including the Controller for the Centre for Health Protection, the Secretary for Education, the Director of Immigration, the Hospital Authority Chairman, as well as the representatives from the medical sector, the business sector and the tourism sector. The meeting is scheduled for approximately 25 minutes. ● During the discussion, the keynotes of the speech delivered by each role shall be recorded by one or two students sitting behind the speaker. Such records may be written on the recording worksheet (Appendix 7). ● The meeting may be halted to enquire the contents of the speech kept by record-keeping students, and summarise the responses or views of different roles on the issue. ● Based on students' discussion and their own knowledge, point out how various sectors of Hong Kong and the Government should respond to EVD as a whole. For example: <ul style="list-style-type: none"> ➤ After the outbreak of SARS in 2003, <u>the Government</u> established the Centre for Health Protection to prevent the spread of infectious diseases. The Centre for Health Protection is responsible for closely monitoring the development of infectious diseases and promulgating contingency plans against the outbreaks of infectious diseases in Hong Kong. In order to cope with any possible outbreaks, the Government should reserve sufficient financial and material resources, train experienced

Lesson	Learning and teaching strategies and flow
	<p>healthcare practitioners, and establish quarantine facilities.</p> <ul style="list-style-type: none"> ➤ <u>The education sector</u> should pay attention to the response levels announced by the Education Bureau and the Centre for Health Protection, strengthen the monitoring of body temperature for school children and campus hygiene. Relevant healthcare information should also be released in order to duly perform its duty in <u>health promotion</u>. ➤ <u>The tourism sector</u> may be concerned that an outbreak of EVD in Hong Kong will lead to decreasing number of visitors to Hong Kong, seriously affecting the spending of tourists and the profits of the tourism industry. As a result, the Government must take measures to appeal to tourists by, for example, providing tourists with more health promotion information relating to EVD. ➤ <u>The business sector</u> may also be concerned that the threats of Ebola will discourage foreign or local investments in Hong Kong, adversely affecting the local economy. Therefore, the Government must take measures in <u>health promotion</u> and <u>disease prevention</u> to appease investors. ➤ The business sector may also encourage its staff to take preventive measures, such as washing hands and sterilising frequently as well as paying close attention to personal health, etc. ➤ In order to duly perform the duties under the second stage of <u>disease prevention</u> (i.e. early detection of diseases), the medical sector should stay in close contact with the Centre for Health Protection, the WHO and other hospitals to enable a swift and accurate diagnosis of EVD cases. Manpower should be deployed to ensure that containment measures and appropriate treatment are taken as soon as possible. <p><u>After-class assignment and extended reading (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Distribute the after-class assignment (Appendix 8) and prompt students to complete the assignment after class based on what they have learnt from the issue.

-- End of learning and teaching exemplar --

Appendix 1: Worksheet for Class Activity

Please browse through the web page of the Centre for Health Protection or the following reading material.

Source A: Information from the Centre for Health Protection web page

Notification of Infectious Diseases

In accordance with the Prevention and Control of Disease Ordinance (Cap.599), there are 49 notifiable infectious diseases and Ebola is one of them. All registered medical practitioners are required to notify the Centre for Health Protection all suspected or confirmed cases of these diseases. Medical practitioners are also advised to report other diseases and conditions that are of public health concern. The Centre for Health Protection will conduct surveillance and control of these diseases.

Ebola virus disease (EVD)**Pathogens**

Ebola first appeared in 1976 in Sudan and the Democratic Republic of Congo, the latter in a village situated near the Ebola River, from which the disease took its name. The disease has appeared sporadically since then. Since March 2014, new cases and deaths of EVD have been continuously reported in the West Africa region.

Symptoms

EVD is a severe acute viral illness often characterised by the sudden onset of fever, intense weakness, muscle pain, headache and sore throat. This is followed by vomiting, diarrhoea, rash, impaired kidney and liver function, and in some cases, both internal and external bleeding.

Mode of transmission

Ebola virus is introduced into the human population through close contact with the blood, secretions, organs or other bodily fluids of infected animals. Some fruit bats are considered to be the natural host of the Ebola virus. In Africa, infection has been documented through the handling of infected chimpanzees, gorillas, fruit bats, monkeys, forest antelope and porcupines found ill or dead in the rainforest.

Treatment

There is no specific effective treatment for the disease. Patients must be managed in quarantine facilities to prevent the spread of the infection. Severely ill patients require

intensive supportive care. Patients are frequently dehydrated and require oral rehydration with solutions containing electrolytes or intravenous fluids.

Prevention

There is no licensed vaccine available for EVD.

To prevent the disease, it is important for travellers to observe the following:

- Avoid unnecessary travel to affected areas
- Observe good personal and environmental hygiene; always remember to use liquid soap or alcohol-based hand rub to clean your hands before touching the eyes, nose and mouth
- Avoid close contact with feverish or ill persons, and avoid contact with blood or bodily fluids of patients, including items which may have come in contact with an infected person's blood or bodily fluids
- Avoid contact with animals
- Cook food thoroughly before consumption; and
- Upon returning from affected areas, observe closely the health conditions for 21 days. If the symptoms of EVD are developed, you should call 999 and inform the staff about your condition so as to allow them to direct you to the Accident and Emergency (A&E) Department for emergency consultation and services.

Source: Centre for Health Protection http://www.chp.gov.hk/en/health_topics/9/24.html

1. Complete the following table according to Source A:

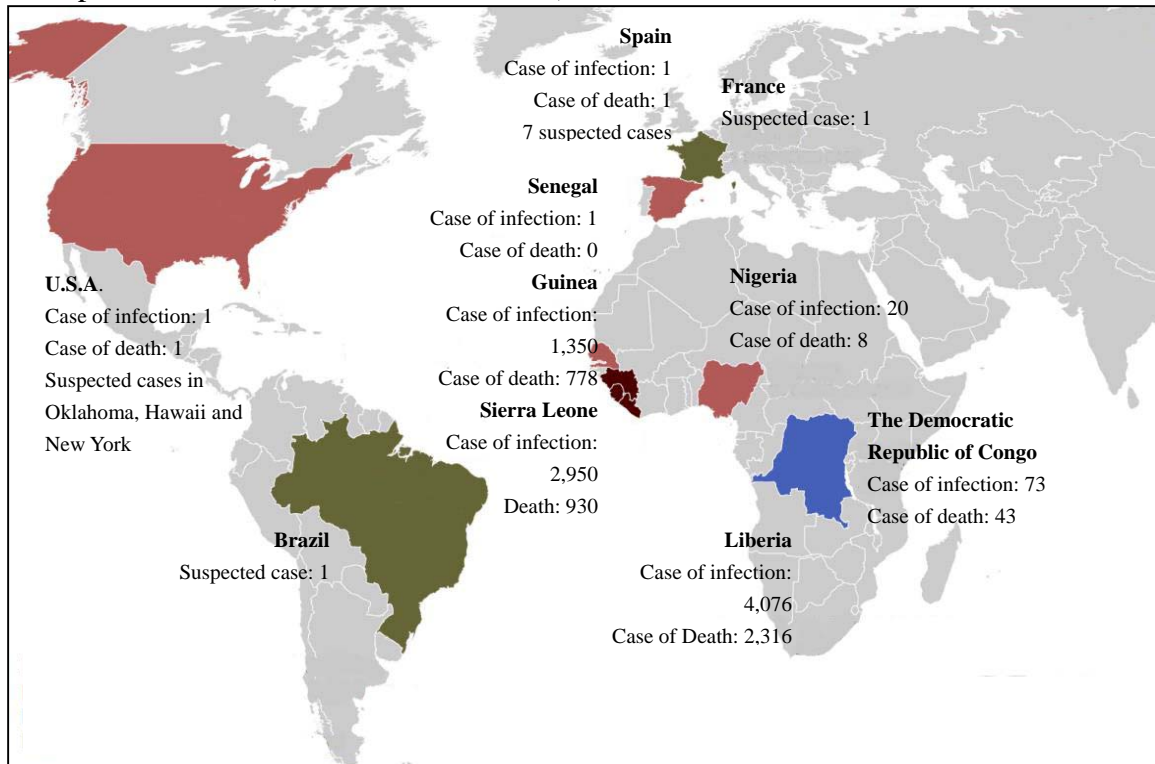
Understanding EVD

a. In which year was EVD first discovered?	
b. Three symptoms of EVD	
c. The mode(s) of EVD transmission	
d. Is there any effective treatment of EVD?	
e. What measures can be taken to prevent EVD infection?	

Appendix 2: Class Reading Materials for Students

Source A

The spread of EVD (as at 10 October 2014):



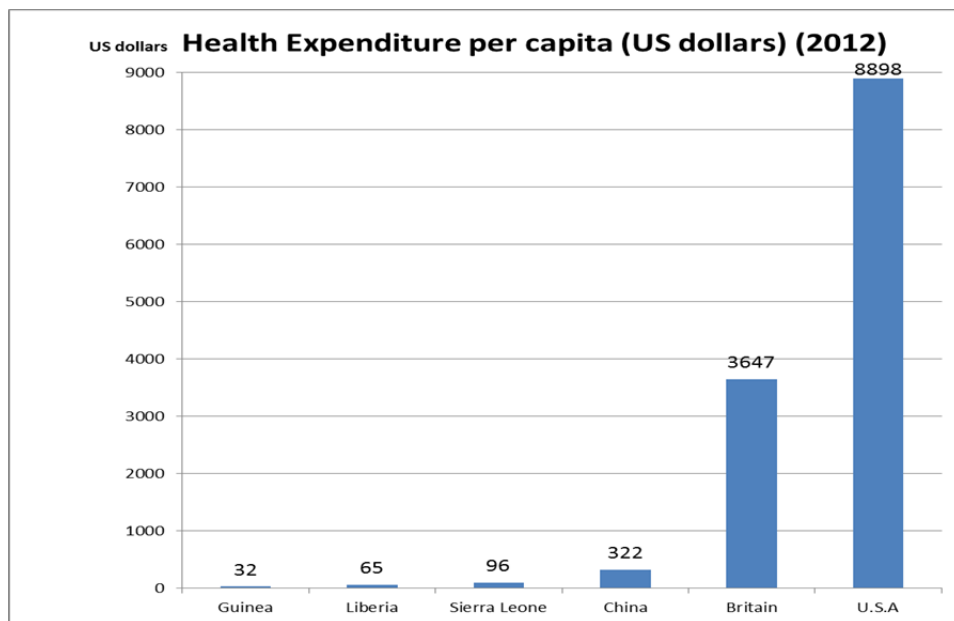
Source: International Business Times

<http://www.ibtimes.com/updated-ebola-outbreak-map-virus-spreads-out-africa-death-toll-tops-4000-1703>

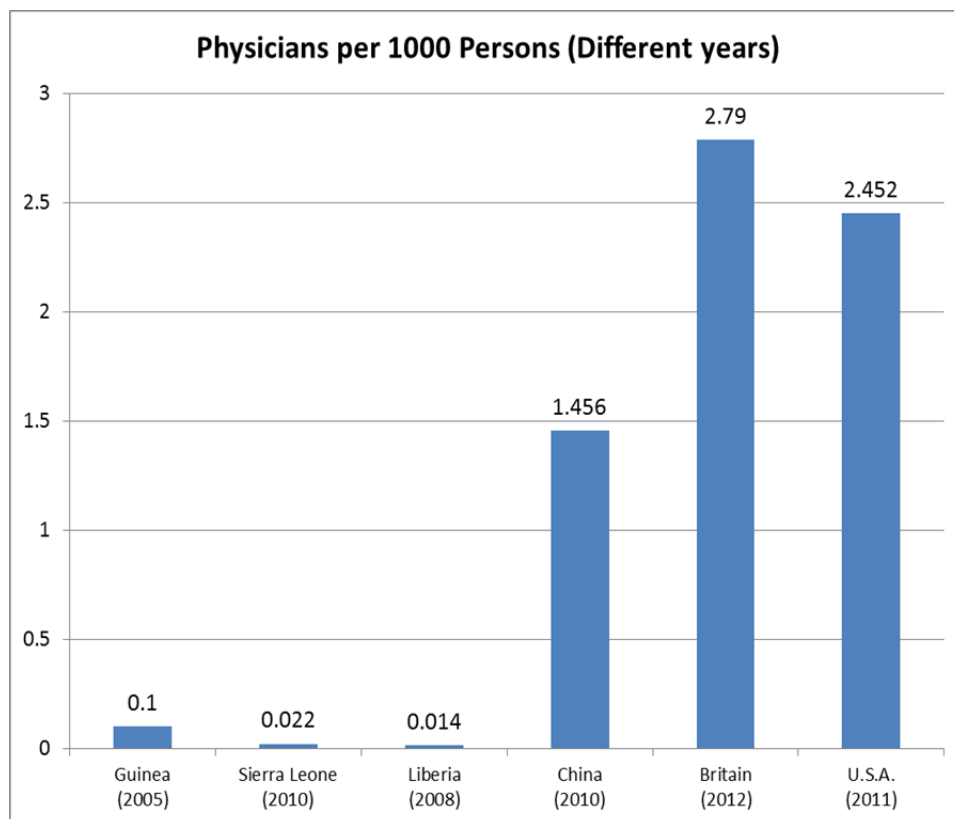
162

Source B

Healthcare data:



Source: Official Website of the World Bank <http://data.worldbank.org/indicator/SH.XPD.PCAP>



Source: The official website of the World Health Organization

http://gamapserver.who.int/gho/interactive_charts/health_workforce/PhysiciansDensity_Total/atlas.html

Source C

In most countries, especially in developed countries, health expenditure increases with Gross Domestic Product (GDP). The main reasons for the increase are an ageing population, increasing demands for medical services, better quality of medical services, as well as rising popularity and development of medical technologies (e.g. better drugs and medical equipment).

Ebola virus's threat in West Africa is attributed to the poor public health condition and outdated healthcare management facilities there. In some places, not only is sanitary drinking water hard to find, there is also a shortage of gloves and protective clothing for the medical practitioners, and what's worse, even their hypodermic syringes are often reused. These led to a continuous increase in infected cases. Economically under-developed, West Africa is a region that can only afford limited resources to promote the development of public health. With little international aid available during the early outbreak, most West African countries had to fight the epidemic with their own resources. In terms of technology, West Africa lags behind in education and lacks facilities for medical technologies. Most of the countries rely on other nations for pharmaceutical research and seldom develop useful drugs independently.

Sources: Adapted from newspaper articles.

Source D

Researchers looking into the Ebola outbreak in Guinea pointed out that the virus might have mutated. Researchers at the Institut Pasteur are now investigating whether the mutated Ebola virus is more infectious.

Ebola is a ribonucleic acid (RNA) virus, and just like the common cold virus (CC virus), it is highly susceptible to mutation. A mutated virus would be more adaptive and infectious. Researchers are conducting research studies to study how the Ebola virus changes and find out whether such changes will cause easier human-to-human transmission. Another concern is that as the virus keeps evolving and infecting more hosts, it might be able to travel in the air after certain rounds of mutation. Up to the present, there is no evidence suggesting such a phenomenon exists, and the virus still spreads through direct contact of body fluid of the infected people.

Source:

“研究人員稱伊波拉病毒已發生變異 恐更易傳染”，2 February 2015, *NOWnews* (今日新聞網).

Retrieved from <http://www.nownews.com/n/2015/02/02/1590421>

Appendix 3: Worksheet for Group Discussion

Sort out the possible reasons for the spread of Ebola in West Africa by integrating examples illustrated in the sources in Appendix 2 and your own understanding on infectious diseases.

	Aspects	Relationships with the spread of the disease
1	Hygiene conditions	
2	Medical facilities and technologies	
3	Economic level and resources	
4	Culture and customs	
5	Government policies	

Appendix 4: After-Class Reading Materials for Students

Source A

While the world shakes in fear of Ebola, the number of infected cases is nothing in comparison to that of malaria or cancer. According to Forbes magazine, assuming the patent term of a specific drug for the virus to be 10 years, based on the incidence rates of Ebola over the years, every patient had to incur at least US\$1 million-worth of medical bills (approximately HK\$7.75 million) for a pharmaceutical company to recover the cost. It is a figure that even the US government would find it difficult to subsidise, let alone the African governments that are in far worse economic positions. This explains why even the big players are staying away from this business where one stands only to lose.

However, what big players consider “poison” is the “honey” in the eyes of their smaller counterparts. According to Thomas Geisbert, a professor at the University of Texas Medical Branch, cost is not a major concern for small pharmaceutical companies as they mainly rely on government funding, and they are more motivated seeing this as a much-awaited opportunity to gain goodwill. The experimental drug that two infected Americans are taking just happens to be developed by an unknown small company with only 9 employees.

Source: “治伊波拉藥不賺錢 大企業拒研發”, 11 August 2014, *Wen Wei Po*.

Source B

The Ebola virus has “gone beyond the borders of Africa” to attack the West. The virus has infected over 9,100 people and killed 4,546 people in three West African countries since March this year, but it wasn’t until infected cases were confirmed in Western countries did the fatal disease alarm the international community, especially the developed countries.

Upon the consecutive confirmation of three cases in the US, the American society immediately switched the mode from “never mind” to “I’m so scared.” Amid doubts cast by its people, the US government was not only able to discover loopholes in its healthcare system, but also came to realise that changes had to be made to its previous policies regarding the disease. According to President Obama, the fact that two American nurses were infected with Ebola demonstrated the importance of providing further help to West Africa by the international community; and the best way to protect America from a serious outbreak is to control the epidemic in West Africa.

Source: “美歐應共同抗擊伊波拉病毒”, 16 October 2014, *Sing Pao*.

Source C

According to UN Special Envoy on Ebola, David Nabarro, from January to June 2015, approximately US\$1.5 billion are needed to fight against the Ebola epidemic. Currently, however, the gap is US\$1 billion. He therefore called on the international community to offer continuous help to severely affected areas in West Africa. The international community, including different governments, non-governmental organisations, individuals and businesses, made generous donations to combat Ebola, guaranteeing, from October to December 2014, that US\$850 million would be used for severely affected areas. Good progress is being made, but the outbreak of Ebola still presents a great threat. We hope that all parties would not be complacent but would continue to do the hard work until the last person suffering from Ebola is under treatment and the outbreak is contained.

Source:

“聯合國：應對埃博拉仍有10億美元缺口”，6 February 2015, *Xinhuanet* (新華網).

Retrieved from http://news.xinhuanet.com/tech/2015-02/06/c_1114280522.htm

Source D

The number of people infected by Ebola fever has doubled in Guinea in the past week following the discovery of cases previously unknown to health authorities, a Guinean health official said. About 12 new suspected and confirmed Ebola cases were recorded in the past two weeks, taking the total number to 53, said Fode Tass Sylla, a spokesman for Guinea's anti-Ebola task force.

Sylla said that the increase was expected because health authorities were only now gaining access to faraway villages where inhabitants had previously forbidden them to enter. “This increase in new case numbers is because we are now able to get to villages where we are discovering hidden infected cases,” he said. The new cases highlight the difficulties that authorities in Guinea, Sierra Leone and Liberia – face in trying to curb the spread of the epidemic which has killed nearly 9,000 people.

Thought to be declining at the start of 2015, the number of new Ebola cases rose in these three countries for the first time this year in the past week, the World Health Organization said.

Source: “隱藏病例冒出 幾內亞伊波拉患者倍增”，6 February 2015, *Reuters* (路透中文網).

Appendix 5: Letter of Appeal

Assume that you were a citizen from a West African country affected by Ebola, write a letter to the organisations or countries concerned and ask them to help West African countries deal with the Ebola crisis.

Appeal to	Developed countries, pharmaceutical companies, the World Health Organization, international non-governmental organisations (Please delete where inapplicable)
Explain the current conditions	Condition of infected people: Local healthcare condition: Local economic condition: Effects on the world:
Express that you understand the recipients' constraints	
Why do you wish to get help? What help do you need?	
Arguments	Argument 1
	Argument 2
	Argument 3

Appendix 6: After-class Reading Materials for Students

Source A

The Administration has adopted the following measures to prevent the importation of Ebola Virus Disease (EVD) into Hong Kong, as well as to strengthen the local response capacity when a confirmed case of EVD is found in Hong Kong:

Enhanced surveillance:

- (a) Since July 2008, viral haemorrhagic fever, including EVD, has been made a statutorily notifiable disease and the virus a scheduled infectious agent under the Prevention and Control of Disease Ordinance (Cap. 599) in Hong Kong. Any suspected or confirmed cases are required to be notified to the Centers for Health Protection (CHP).
- (b) The CHP has issued letters to doctors and private hospitals in Hong Kong a number of times to provide them with information of outbreak developments, affected areas, reporting criteria as well as recommendations on applicable infection control measures and remind them to notify the CHP of any suspected cases (i.e. patients who resided in or had travel history to the EVD affected countries within 21 days before the development of fever and onset of illness) promptly. In view of the latest situation in the United States where EVD patients had low-grade fever at the early stage of infection, the CHP has revised the reporting criteria of EVD cases, lowering the body temperature of fever patients suspected of having EVD from 38 degrees Celsius to 37.5 degrees Celsius, with a view to enhancing surveillance.
- (c) The CHP will initiate immediate epidemiological investigation and follow-up actions upon notification of a suspected case. Patients will be referred to the Hospital Authority (HA) Infectious Disease Centre (HAIDC) in Princess Margaret Hospital for isolation, diagnosis and treatment; and specimens will be collected from patients for laboratory testing to confirm or refute the diagnosis of EVD.

Keep in view WHO's recommendations:

- (d) The CHP will adjust local preventive and control measures according to the WHO's recommendations.

Enhanced risk communication:

- (e) Apart from convening two meetings of the Scientific Committee on Emerging and Zoonotic Diseases (SCEZD), the Department of Health (DH) has also chaired two interdepartmental meetings to gear up other government departments with necessary preparation.
- (f) The DH advises travellers returning from other countries via the issue of press releases/public announcements.

Publicity and public education:

- (g) The DH provides regular updates on the latest disease situation and solicits their collaboration in disseminating health information.
- (h) Deliver pamphlets, posters and health advice to the local African community.
- (i) Hold briefings for private hospitals, relevant government departments as well as the hotel and guesthouse industry.
- (j) Health educational materials, including leaflets, pamphlets and posters, have been produced and widely distributed in the community. A dedicated web page on EVD has been produced under the CHP website with disease updates.
- (k) Travellers have been advised to avoid unnecessary travel to the affected countries.

Port health measures:

- (l) Enhance dissemination of updated EVD related health promotion message to travellers.
- (m) Immigration officers identify arrival passengers holding travel documents issued by the EVD affected countries and provide them with information sheets on EVD.
- (n) Set up thermal imaging systems at Border Control Points (BCPs) to check the body temperature of all inbound travellers.

Source: Food and Health Bureau, HKSAR Government. (2014, October 29). *Replies to LegCo questions.*

LCQ8: Ebola virus disease.

Retrieved from http://www.fhb.gov.hk/en/legco/replies/2014/lq141029_q08.htm

Source B

The Preparedness and Response Plan for Ebola virus disease of the Government of the Hong Kong Special Administrative Region includes three response levels – Alert, Serious and Emergency.

Alert Response Level corresponds to a situation where the immediate health impact caused by the Ebola virus disease on local population is low. Generally, it depicts a situation when there is the Ebola virus with signs of geographic spread in humans outside Hong Kong, but without imminent risk of causing any human infection in Hong Kong; Serious Response Level corresponds to a situation where the risk of health impact caused by the Ebola virus on local population in Hong Kong is moderate. Generally, it depicts a situation when there is an imported human case or infected animal coming from countries of travellers with frequent travel and trade; Emergency Response Level corresponds to a situation where the risk of health impact caused by the Ebola virus on local population in Hong Kong is high and imminent. Generally it depicts a high risk of serious human infections caused by the Ebola virus in Hong Kong, and serious infections may be widespread.

Source: Centre for Health Protection, HKSAR Government.(2014). *Preparedness and Response Plan for Ebola virus disease*.

Retrieved from http://www.chp.gov.hk/files/pdf/erib_preparedness_and_response_plan_for_ebola_virus_disease_2014_chi.pdf

Source C

Nigeria is Africa's most populous country and its newest economic powerhouse. With a population of 21 million, Nigeria's Lagos is Africa's largest city. With assistance from the World Health Organization (WHO), the US Centers for Disease Control and Prevention (CDC), and other institutions, health officials of the Nigerian Government reached 100% of known contacts after the first confirmed case was announced in Lagos. All identified contacts were physically monitored on a daily basis for 21 days.

The leadership and engagement from the head of state and the Minister of Health of Nigeria this time provided ample financial and material resources, as well as well-trained and experienced national staff; isolation wards were constructed, as were designated Ebola treatment facilities; vehicles and mobile phones, with specially adapted programmes, were also made available to aid real-time reporting. In addition, there's a first-rate virology laboratory affiliated with the Lagos University Teaching Hospital. That laboratory was staffed and equipped to quickly and reliably diagnose a case of Ebola virus disease, which ensured that containment measures could begin with the shortest possible delay.

The full range of media opportunities was exploited by Nigeria - from social media to televised facts about the disease delivered by well-known "Nollywood" movie stars of the country. Furthermore, house-to-house information campaigns and messages on local radio stations, in local dialects, were used to explain the level of risk, effective personal preventive measures and the actions being taken for control. On his part, the Nigerian President eased public concerns through appearances on nationally televised newscasts.

Source: World Health Organization. (2014, October 24). *Nigeria is now free of Ebola virus*.

Retrieved from <http://www.who.int/mediacentre/news/ebola/20-october-2014/en/>

Appendix 7: Recording Sheet

Roles: The Controller for the Centre for Health Protection, the Secretary for Education, Director of Immigration, the Hospital Authority Chairman, the representatives from the medical sector, the business sector, the tourism sector (Please delete where inapplicable)

Focuses of Discussion:

- With regard to the possible factors that may lead to an outbreak, analyse the risks faced by Hong Kong and the concerns and considerations of various sectors of the society.
- How can various sectors of the society work together to prevent the Ebola virus from spreading?
- The roles, functions and responsibilities of Hong Kong.

Main arguments of the speaker:	
●	
●	
●	
●	
●	

Viewpoints, concerns and difficulties:

Appendix 8: After-class Assignment

To what extent do you agree with the view that “Globalization poses more opportunities than challenges for the prevention of infectious diseases”? Explain your answer.

[illegible]

Intention of Assessment

Assessment Focus

This assessment item assesses students' understanding on and application of a number of concepts, including “Infectious Diseases and Epidemic Diseases”, “Disease Prevention”, “Disease Diagnosis and Treatment”, “Food Safety”, “Medical Technology”, “Public Health”, “Quality of Life” and “Globalization”, it also aims to assess their analytical and evaluation skills. Students need to answer the questions with what they have learnt in class and their own understanding in a comprehensive and accurate manner, and they may elaborate on their arguments by taking EVD as an example.

Expected Student Performance

● Knowledge

- Students may point out the relationship between infectious diseases and globalization from the perspectives of public health and overall national strength. Starting with the globalized prevention of infectious diseases and referring to concepts such as international collaboration and global governance, students may analyse the question with what they have learnt in class and their own understanding of the subject.
- In terms of opportunities, globalization facilitates the full cooperation among nations and international governmental and non-governmental organisations; helps prevent infectious diseases and promote prevention in a larger scale. Prevention of infectious diseases is strengthened through cooperation of scientific research, drug research and development, drug patenting, medical technology, passenger control, leadership of anti-epidemic teams and humanitarian aid.
- In terms of challenges, in addition to the accelerated spread of infectious diseases caused by globalization, various national governments also have their own considerations of interests and constraints, such as economic benefits, political decisions and imbalanced resources for drug research and development, resulting in the incapability for the prevention of infectious diseases.

● Skills

- Applying knowledge and concepts, and give appropriate responses with a clear personal stance.
- Analysing the relationship between public health and globalization.
- Commenting on the views of others with the knowledge acquired.

-- End of Appendix --

Senior Secondary Liberal Studies

“Public Health” Module

Learning and Teaching Exemplar (2)

Causes and impact of obesity

A. Basic information of the exemplar

Topic	Causes and impact of obesity
Relevant modules, themes and issues for enquiry	<p><u>Leading</u> Module 5 : Public Health ; Theme 1: Understanding of public health</p> <ul style="list-style-type: none"> ● How is people's understanding of health affected by economic, social and other factors? ● In what ways is people's understanding of public health affected by health information, social expectations, personal values and beliefs in different cultures?
	<p><u>Related</u> Module 1: Personal Development and Interpersonal Relationships ; Theme 1: Understanding oneself</p> <ul style="list-style-type: none"> ● What factors influence the self-esteem of adolescents? How is it related to adolescents' behaviour and aspirations for the future? ● How do messages and values from the media influence adolescents? ● Why are different life skills important for adolescents to make full use of present opportunities and prepare themselves for challenges such as adversities and major changes? Why is acquisition of life skills easy for some but difficult for others?
	<p><u>Related</u> Module 3: Modern China ; Theme 1: China's reform and opening-up</p> <ul style="list-style-type: none"> ● What impact has reform and opening-up had on the overall development of the country and on people's life?
Overall design rationale	<p>Nowadays the growing problem of obesity among young people in Hong Kong has become an extensive concern. Hong Kong is not fighting a lonely battle against overweight or even obesity; many developed countries are also confronted by the same problems. This exemplar is focused on Module 5: Public Health, combining the curriculum content about the relationship between young people's appearance and their self-assessment, as well as the impact the mass media have on young people as mentioned in Module 1: Personal Development and Interpersonal Relationships; it also explores the relationship between changes in people's lifestyle and obesity in China as mentioned in Module 3: Modern China, thereby enabling students to explore the possible causes and factors of obesity, as well as its effects</p>

	<p>on young people's physical and mental health.</p> <p>On the other hand, through the example of obesity, this exemplar enables students to learn about the relationship between personal living patterns and public health, leading them to reflect upon personal roles and responsibilities in promoting public health; it also helps students learn how to establish a healthy living pattern and dietary habits through an analysis of the different factors that affect personal health.</p>
Time required	4 lessons (40 minutes per lesson), around 160 minutes in total
Teaching objectives	<p>Knowledge:</p> <ul style="list-style-type: none"> ● To learn about the trend in and causes of obesity among young people. ● To understand the effects obesity has on young people's physical and mental health. ● To explore and discuss the roles played by various stakeholders regarding the problem of obesity among young people. ● To understand the phenomenon of obesity among Chinese children. <p>Skills:</p> <ul style="list-style-type: none"> ● To be able to conduct observation on a conceptual basis using available information when exploring relevant issues. ● To be able to apply relevant knowledge and concepts when researching on contemporary issues. ● To sum up relevant factors based on facts and find out the most fundamental one(s). ● To reach logical inferences. ● To interpret information from different perspectives. ● To be able to express opinions in a concise, logical and systematic manner. <p>Values and attitudes:</p> <ul style="list-style-type: none"> ● To approach the views and values of others in an open yet tolerant mind. ● To respect different lifestyles, beliefs and opinions. ● To take care of personal health, and establish healthy living patterns and habits.
Basic concepts for application	Health, healthy lifestyle, public health, disease prevention, health promotion, non-infectious diseases

Relevant learning experience at junior secondary levels	<p>Having studied various subjects in the Science Education and Technology Education Key Learning Areas, students at junior secondary levels have learnt about major human body parts and systems, and their main functions; main factors affecting health and how to stay healthy; a healthy lifestyle including personal hygiene, a balanced diet, exercise and rest, etc. Teachers are advised to brief students on these contents before using this exemplar and they consider whether students' knowledge is insufficient.</p>
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B. Design of classroom learning and teaching

Lesson	Learning and teaching strategies and flow
Before class	<p><u>Preparation for lesson (around 5 minutes)</u></p> <p>Distribute Reading Data Source A (Appendix 1) to students, ask them to read the material prior to class, so as to enhance their knowledge on the issue.</p>
1	<p><u>Lead-in (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Ask students questions to check their preparation for the class and their understanding of the basic concept of obesity. For example: what is obesity? What are the causes of obesity? What are the effects of obesity on individuals and society? Why is obesity an issue under public health? ● Refer to (Appendix 1) to review the basic concept of obesity with their students. For example: <ul style="list-style-type: none"> ➤ the definitions of overweight and obesity ➤ a brief introduction to Body Mass Index (BMI) ➤ reasons for obesity: an increased intake of energy-dense foods that are high in fat, a lack of physical exercise, social environment, heredity, etc. ➤ overweight or obesity may lead to higher risks of suffering from various diseases, such as certain cancers (like colorectal cancer and breast cancer), diabetes, high cholesterol, hypertension, cardiopathy, apoplexy, gallstone, resulting in heavier medical burdens <p><u>Group discussion and presentation (around 20 minutes)</u></p> <ul style="list-style-type: none"> ● Divide students into groups, ask them to read the materials and watch video clips in order to explore the phenomenon and factors behind the growing problem of obesity among school children in Hong Kong, and ask them to complete the questions set out in the worksheet for class activities. (Appendix 2) ● Randomly ask students to report their discussion results of the worksheet questions; students are also required to record a summary of reports by other groups in the worksheet for class activities. <p><u>Teacher summary and feedback (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Respond to and summarise students' reports, pointing out the fact that the obesity rates in Hong Kong and the world are increasing, which may give rise to enormous expenditure on health; further explain that the causes of obesity among young people are related to a number of factors including personal living patterns (such as a lack of exercise, being mainly involved in sedentary work), dietary culture (such as the

Lesson	Learning and teaching strategies and flow
	<p>fast-food culture, a high-in-calorie dietary mode), pressure, diseases, environment, education and familial heredity.</p> <ul style="list-style-type: none"> ● In addition, ask students whether they agree that these factors such as lifestyle and dietary culture are the causes of obesity, leading to the conclusion that everyone is under the influence of different environmental factors. As teenagers need to absorb various nutrients in their development, excessive dieting will negatively affect their health and development. Young people should maintain a balanced diet and do an appropriate amount of exercise in order to stay healthy. Present the concept of “<u>healthy living patterns</u>” in this section. ● Introduce the concepts of “<u>non-infectious diseases</u>” and “<u>disease prevention</u>”, and ask students to read these concepts after class to consolidate their understanding about chronic diseases.
2	<p><u>Lead-in (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Ask students questions to help them review relevant concepts and factors relating to obesity as taught in the previous lesson, and tell students that they will be discussing the effects of obesity on young people’s physical and mental health during this class. <p><u>Group discussion (around 20 minutes)</u></p> <ul style="list-style-type: none"> ● Divide students into small groups of four, ask them to analyse the reading materials, watch video clips and complete the questions set out in the worksheet for class activities (Appendix 3). ● Randomly ask students to answer questions in the worksheet; students are also required to record a summary of reports by other groups in their own worksheet for class activities. <p><u>Teacher feedback (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Further explain the effects of obesity on physical health, for example, it will cause cardiovascular problems, diabetes, cancers, etc. Refer to the article titled <i>Tackling Obesity</i> by the Centre for Health Protection for further details: http://www.cheu.gov.hk/files/professional/Obesity_EN.pdf ● Respond to students’ presentation and point out the possible effects of obesity on young people’s mentality in their personal growth under certain circumstances. For example: <ul style="list-style-type: none"> ➤ increasing the risk of suffering from depression ➤ adversely affecting one’s self-confidence and self-image Present the four different aspects of health: physical health, mental health, emotional health and social health.

Lesson	Learning and teaching strategies and flow				
	<ul style="list-style-type: none"> ● Remind students to control their weight in a gradual manner and that any products or methods (such as certain drugs or diet menus of extremely low calories) claiming to help accelerate the process of weight loss should never be taken hastily. Students should be told to learn more about professional knowledge concerning weight loss or to seek professional advice before developing practicable solutions and counter-measures, and to establish a sustainable plan for weight loss. ● Encourage students to adopt a positive and optimistic attitude when facing obesity, and tells them that it is important to support their friends in following their practicable weight-loss plans. It is because there are people, who would, in order to meet the so-called standard of “beauty” of the society, resort to extreme dieting in order to lose weight; caring only about natural low calorie and low fat food; go on insane exercising routines; sometimes even going so far to dig throat or abuse laxatives and dehydrate, as well as consuming other weight-loss prescriptions. Should the situation go out of control, one is highly susceptible to anorexia nervosa, a disorder that threatens one’s life. Refer to the article titled <i>Anorexia Nervosa</i> by the Mental Health Association of Hong Kong for further details: http://www.mhahk.org.hk/chi/sub4_1_info_b4_7.htm ● Introduce relevant concepts, such as obesity, self-esteem and <u>health promotion</u>. Ask students to read relevant basic concepts (“<u>health</u>”) after class. 				
3	<p><u>Lead-in</u> (around 15 minutes)</p> <ul style="list-style-type: none"> ● Present figures of adult obesity in China and other countries (Appendix 4), and ask students to discuss whether China has been facing a serious problem of obesity in recent years (analysis can be made from aspects such as the population, increment and percentage analysis). ● Remind students that while data is open to interpretation, they must be supported by sound reasons and evidence. <p><u>Reading and watching materials</u> (around 15 minutes)</p> <ul style="list-style-type: none"> ➤ Either by summarising the video clip and the reading materials or with their best knowledge, students are to analyse the possible reasons that have caused the problem of obesity in China and sum them up into factors with the tables provided (Appendix 5). <table border="1" data-bbox="371 1917 1362 2060"> <thead> <tr> <th data-bbox="371 1917 687 1968">Category</th><th data-bbox="687 1917 1362 1968">Reasons / Key concepts</th></tr> </thead> <tbody> <tr> <td data-bbox="371 1968 687 2060">(A) Personal factors</td><td data-bbox="687 1968 1362 2060">Dietary habits (indulgence in meat and food that are high in oil, salt and sugar), attitudes towards</td></tr> </tbody> </table>	Category	Reasons / Key concepts	(A) Personal factors	Dietary habits (indulgence in meat and food that are high in oil, salt and sugar), attitudes towards
Category	Reasons / Key concepts				
(A) Personal factors	Dietary habits (indulgence in meat and food that are high in oil, salt and sugar), attitudes towards				

Lesson	Learning and teaching strategies and flow	
		health, psychological qualities of individuals
	(B) Family factors	Parenting patterns, one-child policy, overly doting
	(C) Social factors	Urbanisation, working mode, sedentary lifestyle (Driving to work instead of walking)
	(D) Cultural factors	Flaunting one's wealth, traditional thinking (one is blessed if one eats well), the fast-food culture
	(E) Economic factors	The Chinese economic reform, higher quality of life
	(F) Political factors	Inadequate governmental health promotion policies, the implementation of the one-child policy
	(G) Special factors	Genetic mutations, hereditary diseases
	<p><u>Reading and reviewing materials</u> (around 10 minutes)</p> <ul style="list-style-type: none"> ● Explain the importance and requirement of “logical inference” in Liberal Studies, while pointing out common mistakes made by students when making inferences. (Appendix 6) 	
4	<p><u>Learning inferencing skills</u> (around 15 minutes)</p> <ul style="list-style-type: none"> ● Take “Social Factors: Urbanisation” as an example and divide students into groups of four. Ask them to construct conceptual graphs with sticky notes, to carefully make “causal inference”, and to analyse how “Social Factors: Urbanisation” leads to the problem of “obesity” (refer to Appendix 7 for answers). Choose two or three groups to report their findings to the whole class. Graphic tools, such as concept map or flow charts, should be utilised to enable students to “visualise” concrete demonstrations of how thinking skills are applied to analyse social issues. <p><u>Finding out “the most fundamental factor”</u> (around 25 minutes)</p> <ul style="list-style-type: none"> ● Take “the main reasons for “students being late” as an example (Appendix 8) to explain the meaning of “the most fundamental factor” amongst a variety of factors. (Consider whether this should be taught based on students’ abilities). ● With reference to the examples given, students may discuss with their group members about what the most fundamental factor causing the problem of obesity is in China; students may also compare and explain the interrelation among various factors using conceptual graphs, and prioritise such factors (Appendix 8). (Around 15 minutes) 	

Lesson	Learning and teaching strategies and flow
	<ul style="list-style-type: none"> ● After-class assignment: students are required to convert their constructed conceptual graphs into complete paragraphs, and to complete the questions set out in Appendix 9.

-- End of learning and teaching exemplar --

Appendix 1: Students' reading materials before class**What are overweight and obesity?**

- Body mass index (BMI) is a simple index of weight-for-height that is commonly used to classify underweight, overweight and obesity in adults. It is defined as a person's weight in kilograms divided by the square of his height in meters (kg/m^2).
- According to the headquarters of the World Health Organization (WHO), a BMI between 25 and 29.9 is defined as overweight; and a BMI of 30 or over is defined as obesity. However, the WHO Regional Office for Western Pacific Region proposed to lower the standard of obesity among Asian adults in 2000, whereby a BMI of 23 or over is classified as overweight, while a BMI of 25 or over is classified as obesity.
- The calculation of overweight and obesity rates for children is different from that for adults. This is because changes in children's weight and height are found to be related to their age and gender. Please refer to the web page of the Centers for Disease Control and Prevention for further details:
- http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Facts about overweight and obesity

- Overweight and obesity are the sixth leading cause of death globally, attributing to medical burden arising from 44% of diabetes, 23% of ischemic heart disease and 7% to 41% of various cancer cases.
- In 2014, more than 1.9 billion adults aged 18 or above were overweight (accounting for 39% of the world population), among which 600 million were obese. More than 13% of the world's adult population were obese in 2014.
- The worldwide prevalence of obesity more than doubled between 1980 and 2014. Overweight and obesity are linked to more deaths worldwide than underweight (this includes all high-income and most middle-income countries).
- In 2013, 42 million children aged 5 or below were overweight or obese. Once considered a high-income country problem, overweight and obesity are now on the rise in low- and middle-income countries, particularly in urban settings. In developing countries with rapid economic growth, childhood overweight and obesity have been increasing at a rate more than 30% higher than their counterparts in developed countries.

What causes obesity and overweight?

- Consuming more calories than expended is the most fundamental cause of obesity and overweight. An increased intake of energy-dense food that is high in fat, physical inactivity due to the increasingly sedentary nature of many forms of work, changing modes of transportation, and increasing urbanisation, all of which lead to a lack of physical exercise.

What are the common health consequences of overweight and obesity?

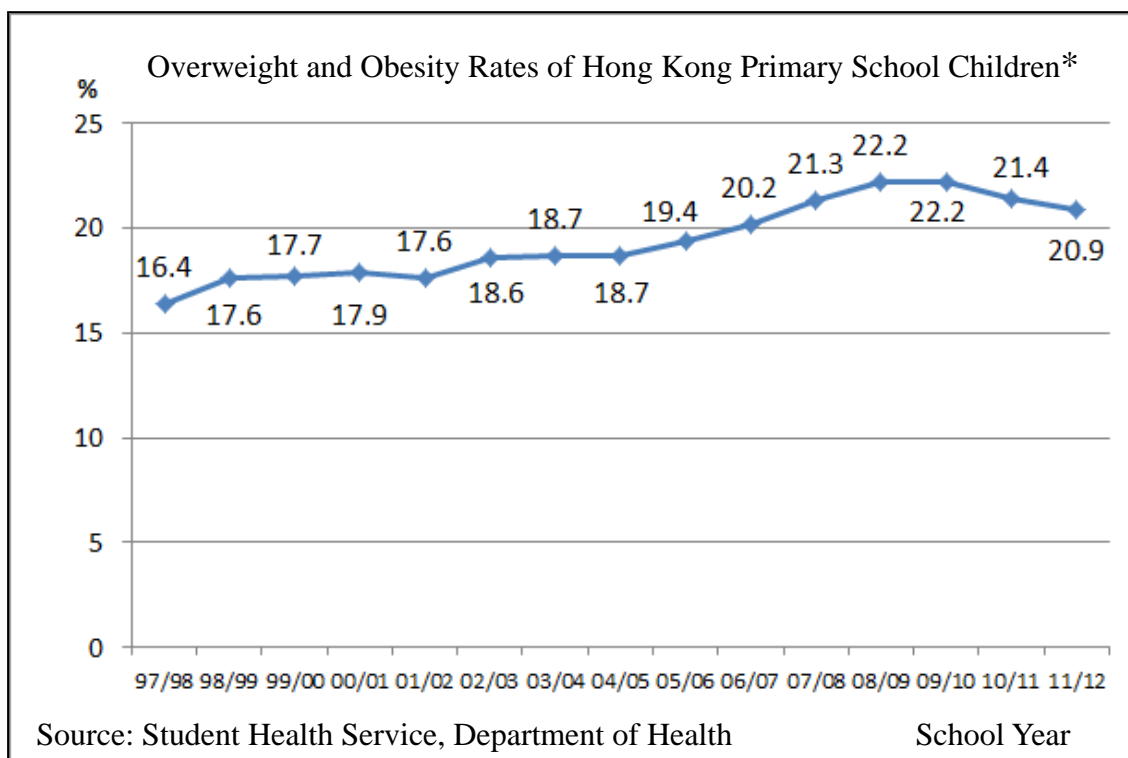
- Raised BMI is a major risk factor for non-infectious diseases such as cardiovascular diseases (mainly heart disease and stroke), diabetes and some forms of cancer.
- Childhood obesity is associated with a higher chance of obesity, premature death and disability in adulthood.
- Many low- and middle-income countries are now facing a “double burden” of disease: while they continue to deal with the problems of infectious diseases and undernutrition, they are experiencing a rapid upsurge in high risk factors for chronic diseases such as obesity and overweight, particularly in urban settings.

Source: The official website of the World Health Organization:

<http://www.who.int/mediacentre/factsheets/fs311/zh/>

Appendix 2: Students' reading materials and worksheet for class activities

Source A

Source: “肥胖學童減少 1700 人 校園推廣健康飲食見效”, 13 December 2012, *Ta Kung Pao*.

* The calculation of overweight and obesity rates for children is different from that for adults. This is because changes in children's weight and height are found to be related to their age and gender. Please refer to the web page of the Centers for Disease Control and Prevention for further details:

http://www.cdc.gov/healthyweight/assessing/bmi/childrens_bmi/about_childrens_bmi.html

Source B

Global Obesity: Overview and Forecast			
	2005	2010	2015(Estimation)
Overweight	1.6 billion	1 billion	2.3 billion
Obesity	400 million	475 million	700 million
Average annual number of overweight- and obesity-attributable deaths	-	2.6 million	-

Source: “全球肥胖概況及預測”, 13 December 2010, *Wen Wei Po*.

<http://paper.wenweipo.com/2010/12/13/ED1012130048.htm>

Source C

Causes of overweight and obesity

Generally speaking, the causes of obesity are the excessive intake of calories resulting from eating junk food, as well as a lack of appropriate amount of exercise. However, the results of some research studies suggest that obesity may also be congenital or otherwise related to social and economic statuses.

- Obesity gene

According to the research result published by the University of Oxford and the UK Medical Research Council in November 2010, the human body contains a “obesity gene” linked with a 70 percent increased risk of developing obesity. The “obesity gene” may be an important factor that determines one’s appetite, and thereby affecting the food intake of humans.

- Children from low-income families are more likely to develop obesity

As discovered by a research study conducted in the state of California, children from low-income families are at a higher risk of developing obesity in comparison to their counterparts from high-income families. 21% of children from low-income families were obese, while a much lower percentage (8%) was reported among high-income families. This phenomenon may be explained through people with low-income turning to cheaper junk food for principal food, as they cannot afford the healthy, low-in-calorie foods that are often associated with high prices. In addition, as low-income families may not necessarily be able to afford other leisure activities of an entertaining or social nature, their children naturally spend most of their time at home watching TV, and are therefore often exposed to commercials of junk food.

Source: “超重及癡肥成因”, 13 December 2010, *Wen wei po*.

Source D

Research Studies on obesity

- According to statistics published by the Department of Health in 2008, nearly 20% (19.7%) of secondary and primary school students were obese, a 3% increase over the number of obese school children 10 years ago, with obesity rates among primary school children reaching as high as 21.3%.
- As shown in the questionnaire conducted by the Leisure and Cultural Services Department, approximately 18% of young males are overweight or obese. Most

citizens, regardless of their age, are lacking physical activities to maintain physical health.

- The personal expenditure on health for obese population is 36% higher than that of those with normal weight; obesity among school children is not only a problem of personal health and development, but also a serious social and economic problem.
- Currently, the number of obese adults in Hong Kong accounts for approximately 38.4% of the total population, with male obesity rates reaching as high as 50.3%. Further research has also discovered that in comparison to people with normal weight, obese adults are 1.7 times more likely to take sick leave at work, thus reducing social productivity.
- Research by the Hong Kong Baptist University found out that while energy-dense, nutrient-poor fast foods contain large amounts of fat, they are popular among citizens because they are cheap, tasty, widely promoted and readily available, resulting in the growing problem of obesity.
- As shown in the questionnaire conducted by the Centre for Health Education and Health Promotion of the Chinese University of Hong Kong, less than 40% of school children and their parents have sufficient daily intake of fruits and vegetables, suggesting room for improvement.

Sources:

1. “控制學童肥胖刻不容緩”, 14 February 2009, *Wen Wei Po*.
2. “香港調查:大部分市民無足夠體能活動維持身體健康”, 6 November 2012, *Hong Kong Commercial Daily (香港商報)*.
3. “癡肥傷身:港學童超磅 健康響警號”, 13 December 2012, *Wen Wei Po*.

Source E

Video: “科學大解碼 71. 壓力是肥胖的元兇之一”
 2 mins and 10 seconds
 Date of release: 19 April 2015
 Putonghua voiceover, Chinese subtitles
 Source: <http://youtu.be/KP0NvjCIR0>

Questions for Group Discussion

1. With reference to Sources A and B, describe the obesity trend in Hong Kong primary school children and in the world respectively.

2. With reference to Sources C to E, which of the factors are causing Hong Kong school children to become more obese? Explain your answer.

Cause	Description

Appendix 3: Worksheet for class activities

Study the following sources and answer the questions.

Source A

Video:	<i>Hong Kong Connection: A Life Weighed Down by Obesity</i> (鏗鏘集：胖我難行)
Date of release:	10 April 2015,
	Please watch from 6:40-8:50 / 14:23-17:22
Source:	https://www.youtube.com/watch?v=gtstiWupigU

Source B

In my memory, I have always been a plump person, ever since I was little. In fact, I grew up with the nickname “fat girl”. I understand in my heart that growing fatter does me no good but harm, so like many others, I have tried a lot of ways to lose weight, such as dieting, meal replacement, taking diet pills, and I even went to see doctors for it. Some of these worked, but others failed. However, even when they worked, they didn’t last long. There would always be a rapid upsurge in my weight once I stopped taking certain drugs, sometimes reaching a greater weight than before, not to mention the possible side effects. So after putting myself through one failure after another, I feel really frustrated now. I think I will just give up.

Source: “我的減肥故事”, June 2005, Patient Newsletter of Hong Kong Sanatorium & Hospital, Volume 21. Retrieved from <http://www.hksh.org.hk/sites/default/files/publications/zh-hant/e842284683dd42426b705505f4e19cb8.pdf>

Source C

An 8-year-old boy weighing over 130 pounds went to the doctor. Given his off-the-chart BMI, he was certainly obese. The skin on the boy’s neck and armpit was dark and looked like “old dirt” at first glance, which was actually the sign of prediabetes caused by an unbalanced secretion of hormones. The boy had been a “fat boy” since his infancy. His parents were quite busy with work, so he was looked after by his grandmother who doted on him, allowing him to become a couch potato with all kinds of snacks. As a result, potato chips, chicken wings and soda drinks became his favourites, finally causing him to suffer from severe obesity.

Source: “癡肥長大惡疾纏身”, 20 September 2010, *Oriental Daily*.

Questions for Group Discussions and Worksheet

1. Imagine yourself to be the leading role in the stories of Sources A to C, how would you feel in those circumstances?

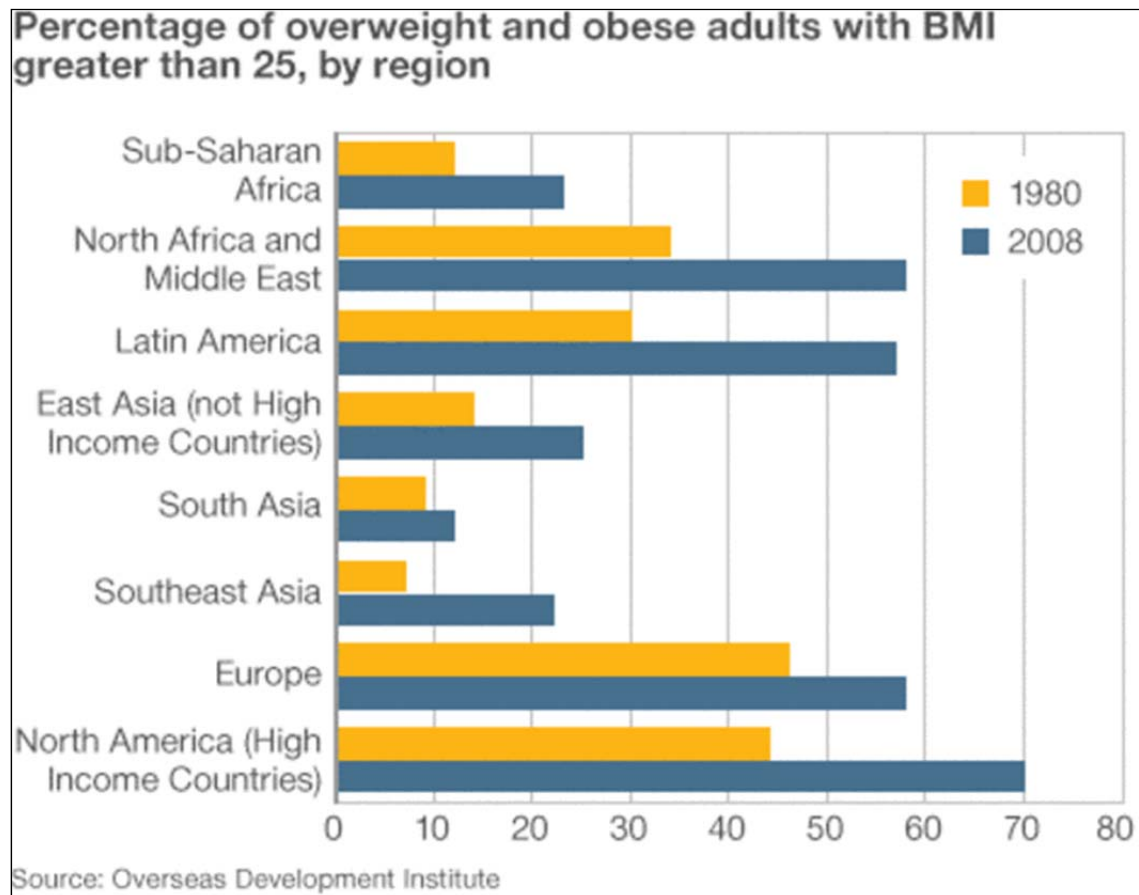
Role in the data sources	Feelings and response
Source A	
Source B	
Source C	

2. With reference to the above sources and your own knowledge, what are the impact of obesity on the mentality of young people?

Appendix 4: Worksheet for class activities

Background information (1): Global overview

Source A



Source:

Obesity quadruples to nearly one billion in developing world. (2014, January 3). *BBC News*.Retrieved from <http://www.bbc.com/news/health-25576400>

Discussion: “Was the problem of obesity in China serious in recent years?”

Viewpoint	Serious / Not serious
Explanation	
Evidence	

Tip: Comparisons can be made with China’s history and with that of other countries

Appendix 5

Source A

Researchers have discovered that China is facing a serious problem of obesity among groups of young children, especially those living in urban areas. This may have significant impact on China's current fast-growing urbanisation and its obesity-related health problems. The fact that a growing problem of obesity emerges in China with its economic development clearly shows that changes in lifestyle are the fundamental reason for obesity.

According to statistics published by the World Bank, China's GDP nearly doubled from US\$2.75 trillion in 2005 to US\$4.99 trillion in 2009. On the other hand, China's obese population nearly increased fivefold from 18 million to 100 million during the same period. According to a British reporter, while many countries are trying to tackle the problem of obesity, China is facing an exploding crisis of obesity: "very few of the last generation Chinese were overweight, as many of them didn't even have enough to eat." But the Chinese economic reform has brought many changes to people's lives: the Chinese people cannot help but indulge in meat and foods that are high in oil, salt and sugar, the convenience of driving instead of walking is hard to give up, and working with computers has become a common sight, all of which are factors leading the nation towards obesity.

Source: "中國的肥胖正與經濟同步增長", 5 August 2011, *BBC Chinese* (BBC 中文網).

Source B

The main reason causing overweight and obesity is an imbalance between the energy consumed and energy expended. There may be insufficient energy expenditure due to a sedentary lifestyle such as lack of exercise, watching television and playing computer games as main activities; this is especially true in developed countries, where people tend to lead a more sedentary lifestyle, where their spare time is mostly spent in sedentary activities such as watching TV. As indicted in various sources of information, a lack of or insufficient physical activity is common among many adults (less than 2.5 hours of activities of moderate intensity per week). Furthermore, obesity may also be fuelled by an excessive energy intake from eating too much food and/or frequent intake of foods that are high in sugar and fat as well as fast-food.

Adapted from the following sources:

1. "衛生署發表使用互聯網及電子屏幕產品對健康的影響報告", 8 July 2014, *Department of Health, HKSAR Government*.
2. "營養標籤多面睇：兒童肥胖症與營養標籤", September 2009, Centre for Food Safety, *HKSAR Government*.

3. “正視肥胖問題：肥胖的成因、現況與預防措施”，2005, *Central Health Education Unit, Department of Health, HKSAR Government*.

Source C

Video:	<i>Video from BBC Chinese Net: Problems that Obesity Brings China</i> (22 Sep 2010) Putonghua voiceover Please watch from 00:01 to 02:48
Source:	https://www.youtube.com/watch?v=nWlU8UUQ-c

Source D

A secondary school teacher in Beijing felt that there were a lot of people who were either overweight or obese in China. What are the factors causing China's obesity population to grow? Well, perhaps having endured such extreme poverty in the past and living now in an age of economic development, the Chinese, who are just starting to get used to a life of lessened financial restraints, overcompensate with eating, thinking that a great appetite is equivalent to a happy life. The teacher believed that obesity was directly attributable to the one-child policy: the only child received way too much attention, especially from their grandparents, who live in constant anxiety that their grandchildren may be underfed or tired from exercising, as a result, reduced physical activity is an important reason for obesity.

China does have a large obese population, but it is nothing in comparison to that of the US: because while the number of people who are overweight in China is by no means small, its obesity percentage is not as high, meaning that the degree of obesity varies among individuals. Eating has seemingly become a solution to all of people's problems. They eat when they feel unsatisfied, they eat when they cannot find someone to love, and they are still eating when they feel unhappy over low income. In addition, a lack of education about healthy diet and parents overly doting on to their only children are also factors attributing to obesity in China.

Over the last decades, there have been tremendous changes in the dietary culture of the orient, especially among the Chinese. China is no longer the country where meat was scarce; it is now able to offer an abundance of food to its people. Other main reasons behind China's obese population include a large amount of processed food products, the introduction of the fast-food culture and the popularity of soft drinks.

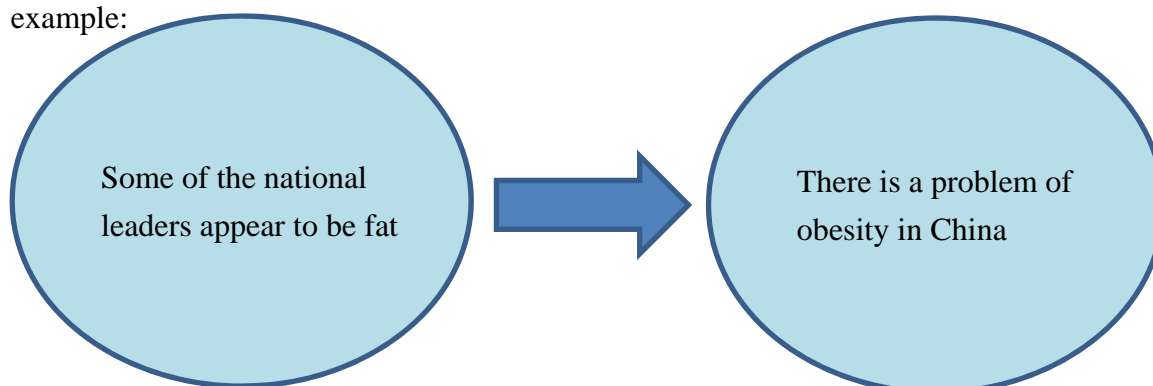
Source: “中國肥胖兒童現象探討”, 27 June 2014, *Radio Free Asia* (自由亞洲電台).

What reasons may have caused the problem of obesity in China? How can these reasons be categorised?

Category	Reasons / Key concepts
(A) _____ factors	<ul style="list-style-type: none"> ● Dietary habits (for example: indulgence in meat and foods that are high in oil, salt and sugar) ● Health views (for example: the kid in the clip thinks that dieting is not necessary to lose weight) ● Psychological qualities (for example: _____)
(B) _____ factors	<ul style="list-style-type: none"> ● _____ ● _____ ● Parents overly doting on their children
(C) Social factors	<ul style="list-style-type: none"> ● Urbanisation (_____in particular) ● The working, entertaining and dietary modes of the urban population ● Sedentary living patterns (for example: _____)
(D) _____ factors	<ul style="list-style-type: none"> ● “Flaunting one’s wealth” ● “Entertaining guests” ● _____ ● _____
(E) _____ factors	<ul style="list-style-type: none"> ● The economic benefits brought about by the Chinese economic reform, higher income for the Chinese people ● Improved quality in material lives (clothing, food, shelter, transportation, education and entertainment)
(F) _____ factors	<ul style="list-style-type: none"> ● Inadequate health promotion policies (for example: _____) ● _____
(G) Special factors	<ul style="list-style-type: none"> ● Genetic mutations ● Hereditary diseases

Appendix 6: What is effective logical inference?

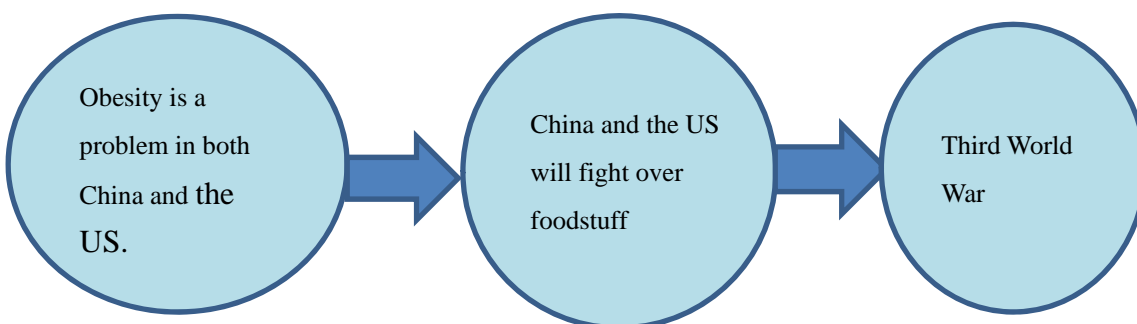
There is an invalid inference that “infers too hastily”; it lacks inferring steps, for example:



Question: Please try to explain why obesity has become a problem for China in recent years?

Answer: There had been many fat national leaders in China’s history; they were commonly admired by most Chinese people. Following their examples, obesity then gradually emerged as a problem in China.

There is also “over-inference” that is flawed to “**infer too far**”, overlooking to give examples and consider feasibilities, for example:



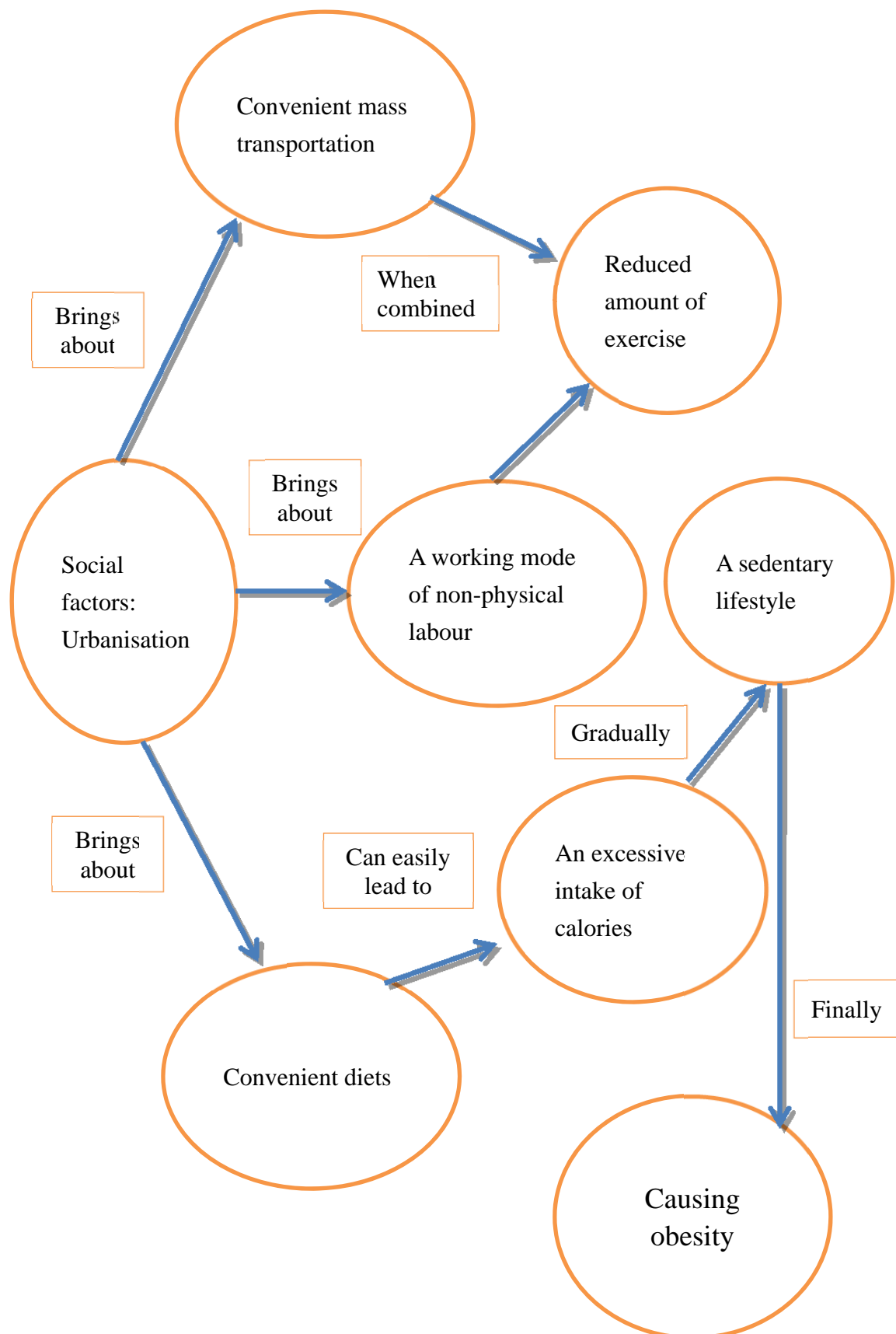
Question: Please try to deduce the effects that China’s problem of obesity may bring.

Answer: Obesity is a common problem faced by both China and the US in recent years. It is likely to increase tension between the two nations, resulting in a number of consequences such as the fight over foodstuff, and will eventually lead to an early outbreak of the third World War, disrupting world peace.

What kind of “inference” is required in Liberal Studies?

- (I) Based on data, facts, personal knowledge and information obtained;
- (II) A clear connection between inference steps;
- (III) A concrete understanding about relevant concepts/questions/phenomena.

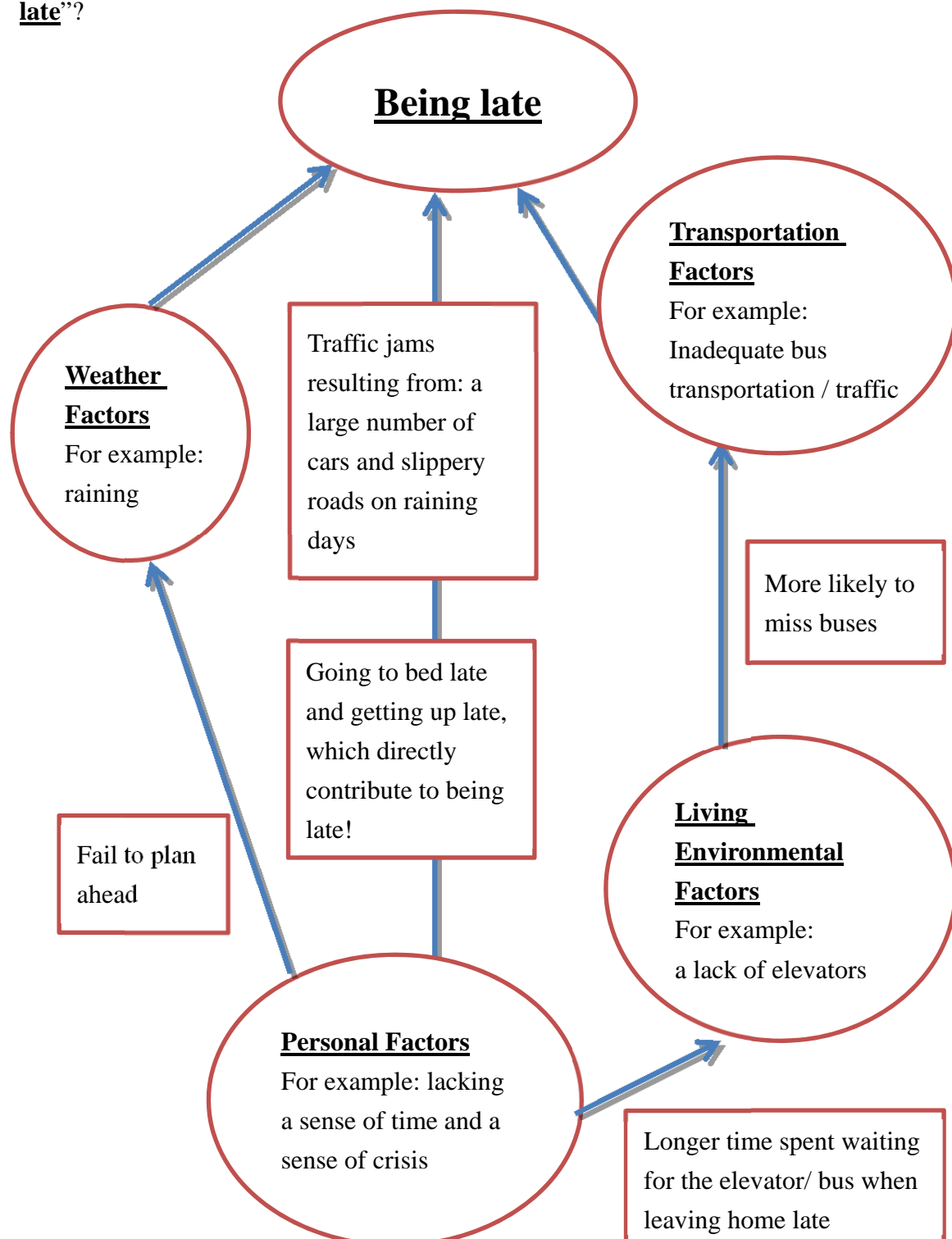
Appendix 7: How does “Social factors: Urbanisation” cause obesity?

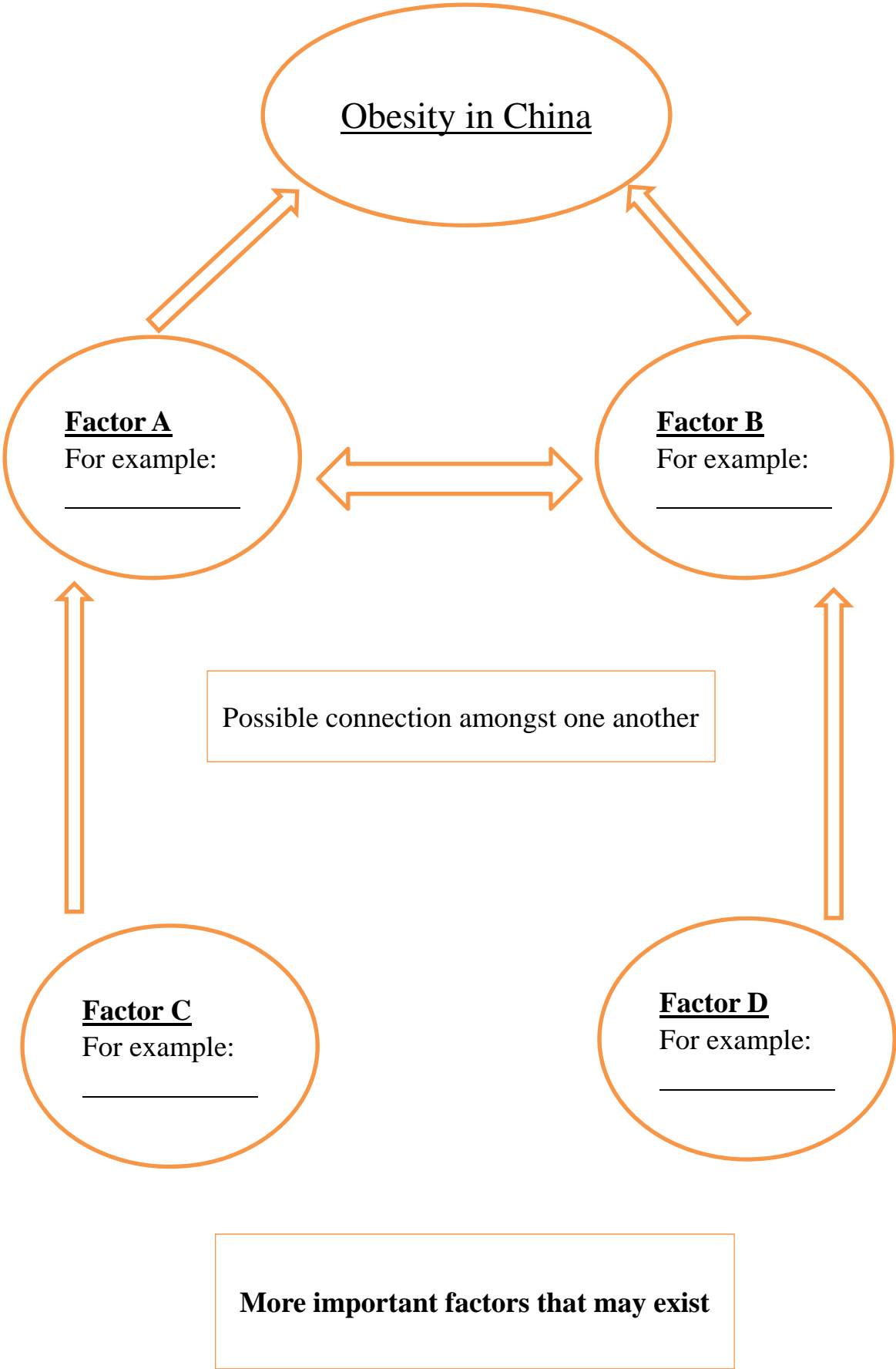


Appendix 8: Analysing the fundamental factors

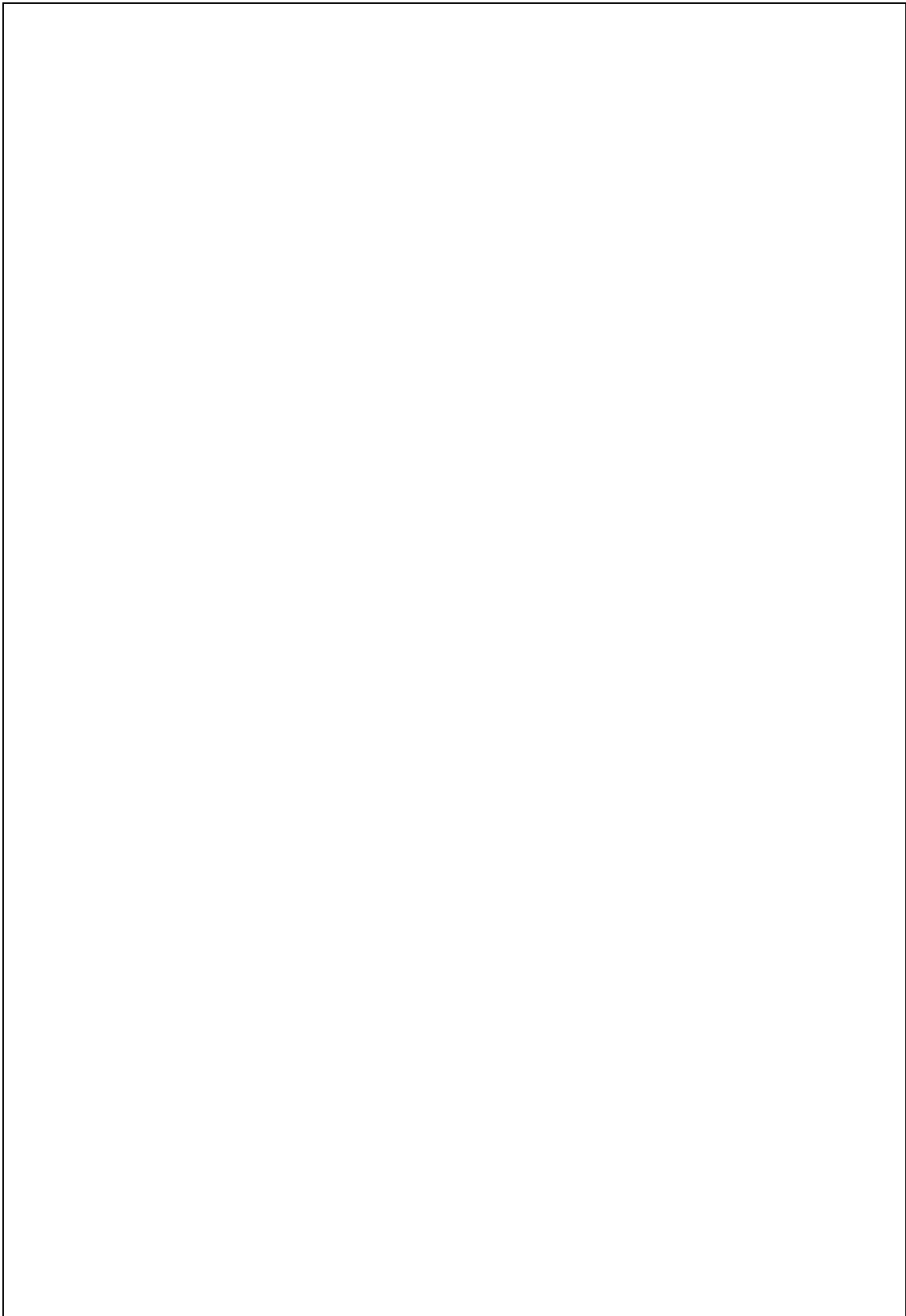
There are indeed various factors that cause a phenomenon to occur; however, is there any connection among such factors? Is there a single factor that exerts greater influence than the rest, to the extent that it is capable of leading the other factors to appear? Is it the factor that can be considered the “fundamental reason” or “main reason”?

Please consider the example below – **What is the main reason for “students being late”?**





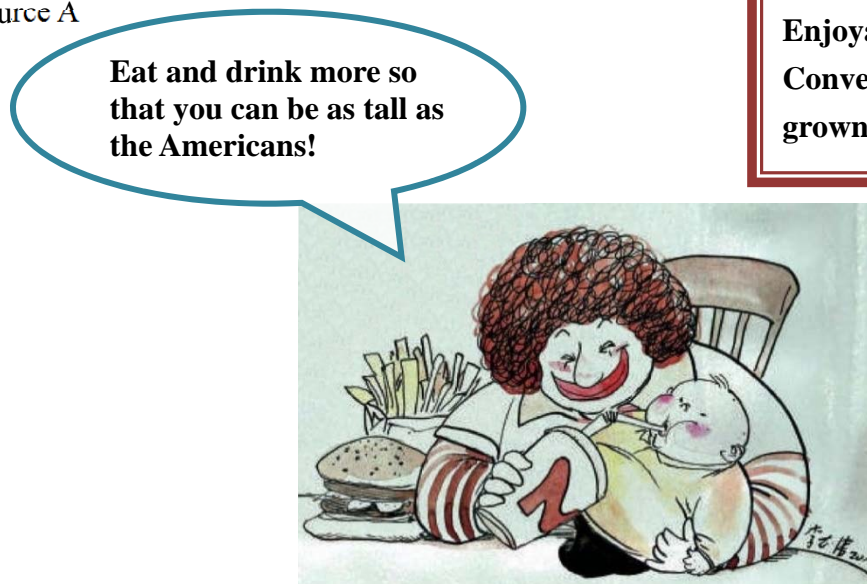
Compile a conceptual graph to show how economic/cultural/other factors can cause obesity in China, and which one of them is the most fundamental reason.

A large, empty rectangular box with a thin black border, intended for the student to draw a conceptual graph. The box occupies the majority of the page below the instruction.

Appendix 9: After-class Assignment

Study the following sources:

Source A



Source: *Ta Kung Pao*. (6 November 2012).

Source B

According to the New York City Department of Health, there has been an increasing number of obese people over the past 30 years and half of these cases are related to taking sugary drinks. In order to address the increasingly serious problem of obesity, New York City intends to launch a sugary drink ban to prohibit fast food shops, restaurants and theatres from selling 454 ml-plus bottled soft drinks and other high-sugar drinks.

Moreover, according to a survey conducted by the Department of Health in Taiwan, one out of every four children is overweight or obese. Legislators called for a ban on high-calorie “junk food” advertising on TV during peak hours. The Director of the Department of Health said that the department has formulated the Draft National Nutrition Act, which will take effect after being reviewed and passed by the legislature.

Source: Adapted from newspaper reports and web resources (1 Jun 2012, 19 Oct 2012).

- (a) With reference to Source A and your own knowledge, identify and explain how the foreign fast food culture influences the eating culture of Hong Kong people.
- (b) “The ban on sales of junk food by legislation is the best solution to address the problem of obesity.” To what extent do you agree with this view? With reference to the above sources and your own knowledge, explain your answer.

Intention of Assessment

Assessment Focus

The sources of the assessment item include a cartoon about junk food and fast food culture and an article on how different places address the problem of obesity. Students should be able to analyse what impact fast food culture and junk food have on people's eating habits and health with reference to the sources and their own knowledge. Students should also interpret how serious the problem of obesity is and evaluate the outcome of the ban on sales of junk food by legislation. Students' application of concepts/knowledge such as "eating habits", "junk food", "fast food culture", "cultural globalization", "surveillance and control system", "legislative regulations", and so on, would be assessed. For the assessment focus of students' enquiry skills, students should be able to demonstrate skills like interpreting the cartoon, summarising the sources, giving suggestions and evaluating outcomes.

Expected Student Performance

- Knowledge
 - For question (a), students should be able to briefly explain the foreign fast food culture and what impact it has on the eating culture in Hong Kong. For example, foreign fast food is well received by both adults and children because of its being fast, simple, and convenient, and could better meet the requirements of Hong Kong people who live a stressful and busy life.
 - For question (b), students should analyse the effective methods to address the problem of obesity from different perspectives. Undoubtedly, the ban on sales of junk food by legislation does work to some extent. However, consumers have the rights to choose food and they should be responsible for their own health. Therefore, by discussing whether the ban on sales of junk food by legislation, students will be able to address the problem of obesity from the perspectives of legislative regulations and personal rights and responsibilities with an overall consideration of respective standpoints. Apart from the strict legislative regulations, students may also consider other milder means which may have better effects, such as encouraging people to develop healthy eating habits.
- Skills
 - Giving appropriate responses with a clear personal stance.
 - Interpreting the conversation and the gestures of the characters in the cartoon;

explaining the message conveyed by the cartoon.

- Selecting the relevant aspects of concepts to formulate arguments to support their comments.
- Evaluating the effectiveness of the possible solutions to the problem of obesity.

-- End of Appendix --

Senior Secondary Liberal Studies

“Public Health” Module

Learning and Teaching Exemplar (3)

Drug formulary and the development of medical technologies

A. Basic information of the exemplar

Topic	Drug formulary and the development of medical technologies
Relevant modules, themes and issues for enquiry	<p>Module 5 : Public Health</p> <p>Theme 1: Understanding of Public Health</p> <ul style="list-style-type: none"> ● How is people's understanding of health affected by economic, social and other factors? <p>Theme 2: Science, technology and public health</p> <ul style="list-style-type: none"> ● Can science and technology provide effective solutions in the prevention and control of diseases? ● In the area of public health, how is the development of science and technology affected by various factors, and what issues are triggered by this development? ● What challenges do different sectors of society, the government and international organisations have in maintaining and promoting public health?
Overall design rationale	<p>The advances in medical technologies have often been perceived to be making rapid yet giant leaps. In response to the gradually increased demand of citizens for disease diagnosis and treatments, the pharmaceutical market brings in a large number of new drugs on an annual basis; however, it remains a difficult task for public hospitals to offer a full range of drugs currently available on the market. The Hospital Authority (HA) implemented its Drug Formulary in 2005.</p> <p>(please refer to the relevant web page of the Hospital Authority at http://www.ha.org.hk/hadf/en_background.html) Through the standardization of HA drug and utilization policy, the HA aims at ensuring equitable access to cost effective drugs of proven efficacy and safety for all patients. By using the Drug Formulary as an introduction, this exemplar aims at enabling students to understand the benefits and challenges brought about by the development of medical technologies. By analysing the causes of the trend in Hong Kong's public expenditure on health and its effects, the exemplar also guides students to comment on the factors that the Government should take into consideration when allocating related public health resources, as well as the challenges it may potentially face, thereby strengthening students' insight into Hong Kong's medical policies. In addition, teachers may also help students come up with effective methods</p>

	to reduce Hong Kong's public expenditure on health by discussing with them various points of interest for different stakeholders, thus enabling students to understand the importance of maintaining public health and preventing diseases.
Time required	4 lessons (40 minutes per lesson), around 160 minutes in total
Teaching objectives	<p>Knowledge:</p> <ul style="list-style-type: none"> ● To understand the trend in Hong Kong's expenditure on health, its causes and the effects it brings. ● To learn about policies relating to the expenditure on health and factors that affect public health. ● To learn about drugs under different categories and their benefits, the functions of drug research and development in maintaining public health as well as their limitations. ● To learn about the factors that should be taken into consideration and the challenges that one may face when allocating public health resources. ● To learn about the roles and points of interest for various relevant stakeholders. ● To gain a rudimentary understanding of the methods or measures that can reduce Hong Kong's expenditure on health, and their limitations. <p>Skills:</p> <ul style="list-style-type: none"> ● To interpret statistical charts, describe the trend as displayed in their data. ● To explain causes of the trend in such data and suggest possible effects. ● To propose selective criteria in order to present different points of interest or values. ● To organise knowledge and apply concepts through listening, reading, discussing and reporting. ● To propose and elaborate on methods to resolve problems. <p>Values and attitudes:</p> <ul style="list-style-type: none"> ● To identify the value orientations behind different opinions on individual and social issues, and to make judgements after considering them from multiple perspectives. ● To adopt an open yet tolerant mind and develop respect for evidence when approaching the opinions and values of others.

Basic concepts for application	Public health, medical technologies, scientific development and public health, drug patenting, health expenditure, disease diagnosis and treatment, health promotion, health prevention
Relevant learning experience at junior secondary levels	Having studied various subjects of Personal, Social and Humanities Education, as well as Science and Technology Key Learning Areas, students at junior secondary levels have already had the following learning experiences: the effects technologies have on our daily lives; common diseases in Hong Kong, their causes and preventive measures; meeting overall community needs with limited resources; culture as a factor to be considered when applying science and technologies, etc. Teachers are advised to brief students on these contents before using this exemplar, should they consider students' knowledge to be insufficient.

B. Design of classroom learning and teaching

Lesson	Learning and teaching strategies and flow
1-2	<p><u>Lead-in</u> (around 10 minutes)</p> <ul style="list-style-type: none"> ● Display the statistical chart relating to the estimated trend in Hong Kong's <u>health expenditure</u> (Appendix 1), ask students to describe relevant trend (for example: it is estimated that Hong Kong's expenditure on health will see a continued increase).
	<p><u>Group discussion</u> (around 10 minutes)</p> <ul style="list-style-type: none"> ● Guide students to discuss in groups the aforementioned causes of the estimated trend in <u>health expenditure</u> (Appendix 1) based on their personal understanding of the relevant subject(s): such as rising medical costs (due to advances made in <u>medical technologies</u>, higher cost of drug research and development; the concept of <u>drug patenting</u> may be introduced in this section), the continued ageing of Hong Kong's population, increasing disease occurrence, as well as improved quality in citizens' lives and higher demand for <u>disease diagnosis and treatment</u>, etc. <p>(Teachers may refer to <i>Your Health, Your Life. - Healthcare Reform Consultation Document(2008)</i>: http://www.fhb.gov.hk/beStrong/files/consultation/chapter1_eng.pdf, or otherwise distribute relevant materials in class based on actual needs)</p> <ul style="list-style-type: none"> ● Ask students to present their findings and teachers summarise the causes.
	<p><u>Group discussion</u> (around 10 minutes)</p> <ul style="list-style-type: none"> ● Guide students to discuss in groups the potential effects of a continued increase in <u>health expenditure</u>, as mentioned above, has on society (Appendix I): for example, it will increase the burden for the Government to bear heavier public expenditure on health, resulting in prolonged waiting time for its citizens; the Government may not be able to sustain investment in healthcare facilities and equipment, while grassroot citizens may be denied access to appropriate medical services; and the increase in private expenditure on health will result in heavier financial burdens for individuals and families, which may undermine the quality of people's lives, etc. <p>(Refer to <i>Your Health, Your Life. - Healthcare Reform Consultation Document (2008)</i>: http://www.fhb.gov.hk/beStrong/files/consultation/chapter1_eng.pdf)</p> <ul style="list-style-type: none"> ● Students present their findings and teachers summarise the effects.

Lesson	Learning and teaching strategies and flow
	<p><u>Teacher summary (around 10 minutes)</u></p> <ul style="list-style-type: none"> Summarise the keynotes of this section, point out the fact that Hong Kong's public <u>health expenditure</u> has witnessed a continuous increase in recent years, and predict that this condition is likely to keep deteriorating in the near future, adversely affecting all aspects of our society. In order to establish a stronger sense of relevancy between the topic and students' lives and raise their interest, combine the topic with students' life experiences when giving explanations, such as students' or their families' actual expenditure on medical services and the waiting time that they may encounter when seeking medical attention. Based on actual situations, guide students to categorise the causes and effects into governmental and individual aspects. <p><u>Lead-in (around 10 minutes)</u></p> <ul style="list-style-type: none"> Introduce 6 different drugs, covering their benefits, side effects and prices. The drugs to be introduced should include some drugs that treat more serious diseases (such as AIDS and cancer) and some that treat mild diseases (for example, acne). <p><u>Group activity (around 20 minutes)</u></p> <ul style="list-style-type: none"> Distribute "Drug Cards" to each group of students and ask them to read the information contained (Appendix 2). Subsequent to students' reading of the "Drug Cards", ask each group of students to assume that they were to help prepare the Drug Formulary themselves. Hence students have to design a simulated "Drug Formulary" and categorise the drugs that have been introduced into the list of either "Standard Fees and Charges" or "Self-financed Items" (Appendix 3). Ask each group of students to list the factors or criteria that they have considered when drafting "My Drug Formulary", and elaborate their reasons for choosing such factors or criteria, such as the severity of a disease, the price of a drug, the persons affected, social needs, etc. Ask students to rank these factors or criteria by their importance and explain the reasons (Appendix 3). <p><u>Teacher summary (around 10 minutes)</u></p> <ul style="list-style-type: none"> Point out that only 1 out of the 6 drugs introduced is currently put under the list of "Standard Fees and Charges" (Drug C, originally named Femoston). Students may discuss the difference between the drug formulary they designed and the Drug Formulary currently in force.

Lesson	Learning and teaching strategies and flow
	<p>(Refer to the <i>HA Drug Formulary</i> at http://www.ha.org.hk/hadf/en_hadf.html)</p> <ul style="list-style-type: none"> ● Summarise the activity. Introduce the fact that the selection of drugs for the Formulary is subject to the criteria developed, which in turn reflect the value orientation behind the Formulary. In addition, it is necessary to take the conditions of our society and the needs of different people into account when selecting the criteria. (Refer to <i>Legislative Council: Secretary for Food and Health's summarising speech on the debate motioned for the "Drug Formulary and Drug Subsidy System"</i> (available in Chinese only): http://www.info.gov.hk/gia/general/201305/23/P201305230553.htm)
3-4	<p><u>Lead-in (around 15 minutes)</u></p> <ul style="list-style-type: none"> ● Introduce the drug formulary system at public hospitals: <ul style="list-style-type: none"> ➤ The Hospital Authority (HA) has implemented its Drug Formulary across public hospitals and clinics since 2005, the aim of which is to ensure equitable access to cost effective drugs of proven efficacy and safety for all patients, through standardisation of the drug policy and utilisation in all HA hospitals and clinics. ➤ The Drug Formulary currently contains approximately 1,300 standard drugs, which can be categorised into General Drugs and Special Drugs. General Drugs comprise around 80% of standard drugs, all of which are cost-effective drugs that are available for use, with well-established indications and effectiveness which are available for use as indicated by the patients' clinical conditions. Clinicians of public hospitals and clinics can prescribe General Drugs under normal circumstances. Approximately 20% of the remaining standard drugs are comprised of Special Drugs. These drugs should be used only when the patient meets specified clinical conditions and with relative specialist authorisation. When prescribing General and Special Drugs under the aforementioned circumstances, the HA will provide patients with such drugs within the standard fees and charges. Should individual patients choose to use Special Drugs within the Drug Formulary when they do not meet specified clinical conditions, these drugs should then be self-financed. ➤ Should patients choose to use drugs other than the standard drugs within the Drug Formulary, they have to purchase them on their own. However, in terms of self-financed drugs proven to be of

Lesson	Learning and teaching strategies and flow
	<p>significant benefits but not included in the Drug Formulary due to considerations of overall cost-effectiveness, the Government will subsidise patients with financial difficulties who meet the specific indications through the Safety Net supported by the Samaritan Fund. Self-financed drugs not covered by the Safety Net for the time being only include: (1) drugs which have preliminary medical evidence only; (2) drugs with marginal benefits over available alternatives but are extremely expensive; and (3) drugs which are not medically necessary but related to lifestyles (for example: weight-loss drugs).</p> <ul style="list-style-type: none"> ● Students should read the categories and provision of drugs within the HA Drug Formulary (Appendix 4). (Refer to information of the <i>HA Drug Formulary</i> at http://www.ha.org.hk/hadf/en_background.html) <p><u>Group activity (around 25 minutes)</u></p> <ul style="list-style-type: none"> ● Students should read the materials provided (Appendix 5) in groups. Each group may be assigned 2 paragraphs and asked to highlight the key points, which include various stakeholders involved, their respective points of interest and specific difficulties. Invite 2 or 3 groups to report on the key points. <p><u>Teacher summary (around 15 minutes)</u></p> <ul style="list-style-type: none"> ● Summarise the key points of this section, for example, while the objective of setting up the Drug Formulary is to achieve a more effective and fair utilization of public health resources, there are still people who are concerned that certain patients may be denied access to the optimal treatment because they cannot afford the expenses. Point out that the advances in <u>medical technology</u> often lead to issues on how resources should be utilised and allocated, for example, on how to fairly address the needs of different social groups. <p><u>Whole class discussion (around 15 minutes)</u></p> <ul style="list-style-type: none"> ● Lead the whole class to come up with a solution and discuss other methods to reduce the <u>health expenditure</u>. Guide students to come up with methods that are concrete and feasible, and ask them to explain how their methods can resolve the issue. Ask more questions to guide students to discuss the relevant issues in depth. <p><u>Teacher summary (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Summarise a few methods that can reduce public expenditure on health (Appendix 6), such as allocating more resources for <u>health promotion</u> and <u>disease prevention</u>, encouraging citizens to participate in the

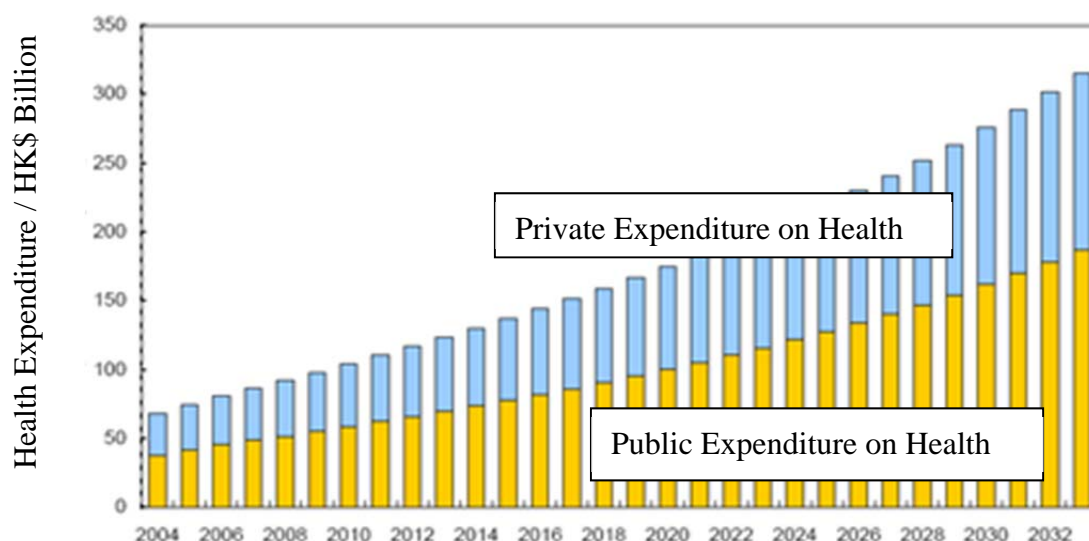
Lesson	Learning and teaching strategies and flow
	<p>Voluntary Health Insurance Scheme, motivating citizens with higher income to use private medical services more often, raising fees for public medical services, etc. (Refer to <i>Healthcare Reform Second Stage Public Consultation Report</i>: http://www.myhealthmychoice.gov.hk/pdf/report/Executive_summary_eng.pdf and http://www.myhealthmychoice.gov.hk/pdf/report/organizations/O074.pdf)</p> <ul style="list-style-type: none"> ● Distribute the after-class assignment (Appendix 7). Ask all students to apply the concepts and knowledge they have gained to finish the assignment after class.

-- End of learning and teaching exemplar --

Appendix 1: The trend, causes and impact of Hong Kong's health expenditure

Analyse the trend in Hong Kong's health expenditure and its causes, and then estimate the impact it may bring.

The chart below sets out the expected public and private expenditure on health from 2004 to 2033



Source:

Hong Kong's Domestic Health Accounts : Financial projection of Hong Kong's total expenditure on health from 2004 to 2033.

Cause	Describe the trend in public and private expenditure on health as indicated in the chart.	Impact
1.		1.
2.		2.
3.		3.
4.		4.

Appendix 2: Drug cards

Activity: Read the “Drug Cards”





Name:	A (Drug for AIDS-Acquired Immune Deficiency Syndrome)
Dosage form:	Capsule/100mg or injection/20mg/ml
Primary	It is an antiviral agent that can prevent the forming of virus DNA. This
Benefits:	drug is suitable for treatment of AIDS and its relating symptoms.
Side Effects:	The most common side effects include anaemia, nausea, headache, rubedo, abdominal pain, muscle pain, vomiting, insomnia and loss of appetite.
Price:	Assuming a daily dosage of 500mg to 600mg, the minimum daily cost would be HK\$97.5. A course of 16 weeks would result in cost exceeding HK\$10,000. Currently drug manufactures in the Mainland have the equipment and technology to produce a cheaper generic drug called B. However, it is not available in Hong Kong due to patent issues.




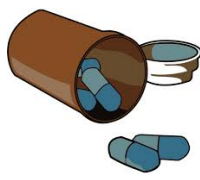
Name:	B (A form of estrogens that alleviates symptoms during menopause)
Dosage form:	A variety of pills (1mg/ 2mg/ 5mg)
Primary	Its ingredients of estrogen (female hormone) can alleviate short-term
Benefits:	or long-term symptoms during menopause, especially hot flashes. It can also be used to treat mood swings resulting from ceased menstruation and can effectively prevent osteoporosis. However, continued use of estrogen for more than 10 years will slightly increase the likelihood of breast cancer and uterine cancer.
Side Effects:	Breast pain, colporrhagia and weight gain
Price:	Assuming a daily dosage of 1mg, a course of 16 weeks would result in cost of approximately HK\$300.

* **Hot flashes:** Due to hormonal changes in certain body parts of women going through menopause, women often experience a sudden expanding of blood vessels in their faces during this period, which causes blood to concentrate on the facial area, resulting in reddened skin.

	
Name:	C (Quit-smoking gum)
Dosage form:	Gum/ 2mg or 4mg
Primary Benefits:	As a nicotine gum that reduces symptoms induced by quitting smoking, it helps users successfully quit smoking. A variety of cancers and long-term diseases can be prevented by quitting smoking, but the success of such an endeavour largely depends on one's will power. Because this drug is nothing like cigarettes, it has been proven difficult to establish a routine of regular dosage among users. Therefore, interceptions are likely to occur.
Side Effects:	Dizziness, headache, nausea, discomfort of the stomach and intestine. Not suitable for patients suffering from severe heart diseases or ulcer in the stomach and intestine.
Price:	Dosage volume varies over individuals. Generally speaking, assuming the dosage to be 2mg per gum, the weekly cost would be HK\$20.

	
Name:	D (Drug for leukaemia)
Dosage form:	Capsule/100mg
Primary Benefits:	It can be used to treat chronic myeloid leukaemia. While bone marrow transplant remains the most fundamental treatment for chronic myeloid leukaemia, the drug, however, will be the first choice in the absence of a matching donor for bone marrow or stem cells. Its primary effect is to block cellular proliferation signals of cancer cells. The drug is commonly taken orally, and with such convenience, patients are therefore more readily to accept this drug. However, there have been a number of relapses reported after a few months of taking the drug.
Side Effects:	Vomiting, nausea, oedema, diarrhoea. In comparison to other drugs of a similar nature, the side effects caused by this drug are considered insignificant.
Price:	Assuming a daily dosage of 400mg to 600 mg, the minimum daily cost would be HK\$480. A course of 16 weeks would result in cost exceeding HK\$50,000. As the drug is newly developed, there is no cheaper generic drug available for the time being.

	
Name:	E (Acne drug)
Dosage form:	Capsule/ 10mg or 20mg
Primary Benefits:	This is the strongest drug to treat severe acne. It has four primary effects: it significantly reduces the function of the sebaceous glands; it prevents hair follicles from being blocked, resulting in fewer closed and open comedones; it also kills bacteria and prevents inflammation of the hair follicles.
Side Effects:	It may cause pregnant women to give birth to malformed infants, and may also adversely affect liver function, resulting in hair loss as well as dry and cracked skins. Not suitable for patients with liver and kidney failures, vitamin A toxicity, or elevated levels of blood lipids.
Price:	Assuming a daily dosage of 20mg, the monthly cost would be HK\$1,200. A course of 16 weeks would result in cost of approximately HK\$4,800. There is no cheaper generic drug available in Hong Kong for the time being.

	
Name:	F (Drug for erectile dysfunction)
Dosage form:	Pill/25, 50, 100mg
Primary Benefits:	It can treat erectile dysfunction.
Side Effects:	Its side effects are usually mild, including headache, hot flashes in the face or neck, indigestion or stomach-ache, diplopia (seeing two images) and photophobia.
Price:	Based on the information available on the Internet, prices for this drug vary greatly. The price for a pill of 100mg can be HK\$78 or higher. As the dosage varies over individuals, it is difficult to estimate the cost for long-term use.

Source: “小組討論：齊來制訂標準藥物名冊”，*Oxfam Cyber School* (樂施會無窮校園).

Retrieved from http://www.cyberschool.oxfam.org.hk/res_search.php?res_id=161

Appendix 3: Design of the “Simulated Drug Formulary”**Simulated Drug Formulary**

Would you put the aforementioned drugs under the list of “Standard Fees and Charges” or “Self-financed Items”?

Standard Fees and Charges	1.	2.	3.	4.
Self-financed Items	1.	2.	3.	4.

What criteria did you consider when drafting this drug formulary? Explain.

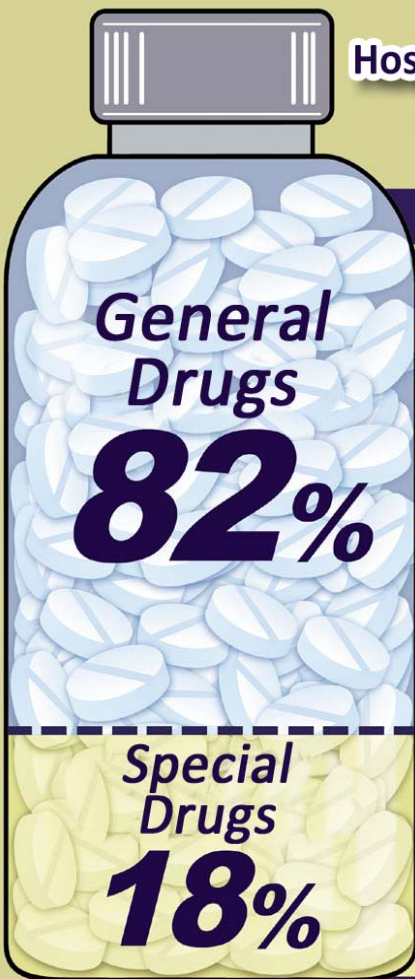
1. _____

2. _____

3. _____

4. _____

Appendix 4:**Hospital Authority Drug Formulary – Categories and Provision of Drugs**

Hospital Authority Drug Formulary (HADF)			
Categories and Provision of Drugs			
	Prescription	Fees & Charges	Supply
	Drugs with well-established indications and effectiveness which are available for general use as indicated by patients' clinical conditions *	Standard fees and charges	General outpatient clinics and specialist outpatient clinics of public hospitals
	Drugs to be used under specified clinical conditions with specific specialist authorisation *	Standard fees and charges	General outpatient clinics and specialist outpatient clinics of public hospitals
Self-financed Items	Safety Net Items (A safety net is provided to subsidise patients who have financial difficulties in acquiring certain specified drugs.) These are drugs clinically proven to be effective, but are very expensive, including: -Interferon -Growth hormone -Paclitaxel (for treatment of breast cancer) -Imatinib ("Glivec" for treatment of chronic myeloid leukaemia and gastrointestinal stromal tumour)	Clinicians may refer needy patients who fulfil the clinical criteria to seek financial assistance. Professional social workers will decide on the level of subsidy, using objective criteria to assess the patient's level of need.	Available at pharmacies in public hospitals and clinics.
	The following categories of drugs are not covered by the HA under standard fees and charges and need to be self-financed by patients: -Drugs which have preliminary medical evidence only -Drugs with marginal benefits over available alternatives -Lifestyle drugs Note: If a patient requests a Special Drug but his/her clinical condition is not covered by the prescription guidelines on Special Drugs, clinicians may issue a prescription for the patients private purchase, having taken into account his/her clinical condition.	Patients may purchase these drugs from community pharmacies. However, the HA may supply for purchase those drugs that are very specialised and are thus not readily available at community pharmacies. These include: -Immunosuppressives -Psychiatric drugs -Oncology drugs -Dangerous drugs -Injectable drugs	

* In actual situations, a hospital may not have all HADF items in stock. When clinically indicated, clinicians may prescribe drugs of the same category from an individual hospital's stock to ensure appropriate drug treatment for patients.

Appendix 5: Reading Materials

Source A

Rapid advances in medical technology have brought in many new drugs into the pharmaceutical market every year. It would be impossible and impracticable for public hospitals in any country to provide a full range of drugs. Consequently, international healthcare providers have to make rational choices on the best available drugs, to achieve rational use of public resources and enhanced accountability. The World Health Organization (WHO) also recommends health authorities around the world to establish their own mechanism for standardisation of their drug formulary. For more than a decade, 156 countries or territories have already followed WHO's advice and developed their national list of essential medicines, taking into account their disease prevalence, available evidence on efficacy and safety, and comparative cost effectiveness.

The HA has set up its Drug Advisory Committee since 1996 to scrutinise the introduction of new drugs into public hospitals. The HA also issues and reviews guidelines on clinical practices to ensure that drug utilisation in the organisation is rational and evidence-based. Although it remains the current practice that individual hospitals / hospital clusters may maintain their own drug formularies, there are still existing variations in terms of the list of essential medicines across HA hospitals. In light of this, the HA embarked on the development and implementation of its Drug Formulary in 2005 to standardise drug utilisation across public hospitals and clinics to prevent occurrence of the conditions as mentioned above.

By introducing the Drug Formulary, the HA aims at ensuring equitable access to cost effective drugs of proven efficacy and safety for all patients, through standardising the drug policy and its utilisation in all HA hospitals and clinics.

Source: Hospital Authority, HKSAR Government.

Retrieved March 20, 2015, from http://www.ha.org.hk/hadf/en_background.html

Source B

Organisations for patients' rights expressed criticisms that clinicians only strictly abide by the rule of "only making changes to the prescription when there is an effect on the patient's primary conditions" in their execution of the Drug Formulary guideline, totally overlooking impact on other parts of a patient's body caused by the side effects

of drugs. These organisations are of the opinion that such practices may force patients with financial difficulties to choose General Drugs with poorer benefits and greater side effects, resulting in prolonged treatment and higher demand for medical services. Therefore, it not only fails to lower the overall social cost, but also brings the cost to a higher level.

Source: “資助門檻高 冒險食平藥”, 2 November 2013, *Oriental Daily*.

Source C

Some are of the opinion that while patients with sufficient funds have the option to purchase drugs with greater benefits and fewer side effects; those with financial difficulties, on the other hand, can only take on prescribed drugs within the Drug Formulary that are provided within standard fees and charges. While being relatively cheap, such drugs may have more serious side effects, therefore may not necessarily achieve the best curative effect. By taking price as the primary consideration for drug utilisation, the guideline overlooks the genuine needs of patients, giving rise to the situation where “the wealthy are well provided with effective drugs while the poor stand drugless”. For example, the majority of newly developed cancer drugs, drugs for Rheumatoid and psychiatric medications are all self-financed items. Take anti-cancer drugs for example, a single course would easily cost HK\$60,000 to HK\$100,000, an expenditure that ordinary citizens cannot afford.

Source: “冇錢冇得醫 議員促廢藥物名冊”, 20 June 2009, *Oriental Daily*.

Source D

The HKSAR Government granted an additional HK\$230 million to the HA to extend the existing Drug Formulary. In addition to extending clinical application and treatment purposed for over 50 drugs under 9 categories that were already covered by the Drug Formulary, 3 other self-financed items or drugs covered by the Safety Net were also added to the Formulary, including Oxaliplatin, a drug that treats rectal cancer, the Interferon that treats multiple sclerosis and Gemcitabine that treats pancreatic cancer and bladder cancer.

25,000 patients will benefit from the new Drug Formulary. The HA's estimated annual expenditure on drugs exceeded HK\$3.6 billion, representing an 11% increase against that of last year. The HA also pointed out that the decision to bring in new drugs, extend categories and indications within the existing Drug Formulary was based

on concrete evidence obtained from scientific research, the safety, curative effect, cost-effectiveness of relevant drugs, as well as other related factors, such as the advice from professionals and patient organisations. With an aim to utilise public resources in a fair and effective manner, to provide patients with appropriate treatment, and to improve the quality of their lives, all amendments were made based on the need of actual circumstances.

Source: Information Services Department. (2013, October 30). *LCQ11: Hospital Authority Drug Formulary*.

Source E

The Samaritan Fund managed by the HA provides one-off financial assistance to patients with financial difficulties to cover treatment expenses other than maintenance fee or medical charge for out-patient services at public hospitals. Drug cost is included in the assisting areas covered by the Fund. For example, the Fund can pay for as much as 70% of the cost for drugs proven to be of significant benefits but too expensive for the HA to provide as part of its subsidised service.

Source: Information Services Department. (2013, October 30). *LCQ11: Hospital Authority Drug Formulary*.

Source F

When the Queen Elizabeth Hospital adopted a “treatment after payment” approach in handling a female who was in critical condition after surviving in a car accident at Mong Kok Road in 2009, it put the hospital under public scrutiny. Members of the Legislative Council had been heard criticising the hospital for “treating the wealthy and ignoring the less fortunate”. This then set off another round of hot debate over the Drug Formulary at public hospitals. Immediately after the incident, the HA set out a new guideline for drug utilisation during emergencies, determining that any drug prescribed by doctors during emergencies shall not incur any extra fees and charges, thereby eliminating the grey area in its Drug Formulary.

Source: “「救命藥」自費 醫局認錯擬改善 伊院要求傷者自購止血針 王父救女心切「碌卡」支付”, 15 June 2009, *Wen Wei Po*.

Appendix 6:

Suggest other solutions to relieve the burden of Hong Kong's public healthcare system.

Propose other solutions to relieve the burden of Hong Kong's public healthcare system.

1. _____

2. _____

3. _____

4. _____

Appendix 7: After-class Assignment

Study the following source:

The *New York Times* recently reported that the new drugs produced by the pharmaceutical companies can certainly help to relieve suffering and preventing premature death. However, some of the most popular drugs have nothing to do with matters of life and death. These so-called lifestyle drugs treat toe fungus, obesity, baldness, face wrinkles, impotence, etc. The market for such drugs is worth billions of dollars a year, and is one of the fastest-growing product lines in the industry.

In the less developed countries, the death rate of preventable, curable diseases such as malaria and tuberculosis is almost three times as that of AIDS. Some pharmaceutical companies found it non-profitable to produce new drugs to keep them alive; Therefore these patients died because the drugs which can treat their illnesses are non-existent or losing the effectiveness against their illnesses.

Adapted from:

1. Seeger Weiss LLP. Emphasis on Lifestyle Drugs. Retrieved 7 July 2014 from <http://www.seegerweiss.com/law-practices/drug-injury/Social-Responsibility/>
 2. The Nations. Millions for Viagra, Pennies for Diseases of the Poor. Retrieved 29 July 2014 from <http://www.thenation.com/article/millions-viagra-pennies-diseases-poor>
- (a) With reference to the above source, do you think that pharmaceutical companies should invest more in developing drugs targeting life-threatening diseases rather than lifestyle drugs?
- (b) “Education is effective in enhancing the development of public health in the less developed countries.” To what extent do you agree with this view? Explain your answer.

Intention of Assessment

Assessment Focus

The source of the assessment item shows the situation that the pharmaceutical companies are more willing to develop lifestyle drugs for markets in more developed countries than those drugs targeting life-threatening diseases usually found in the less developed countries. Students are expected to judge whether pharmaceutical companies should invest more in developing drugs targeting life-threatening diseases rather than lifestyle drugs. Also, students have to discuss about the effectiveness of education on enhancing the development of public health in the less developed countries.

Students' application of knowledge and concepts such as "drug patenting", "development of science and technology", "life-threatening diseases", "lifestyle drugs", "less developed countries", "human rights", "education", "public health" and so on, would be assessed. Students should be able to identify the dilemma reflected upon the development of drugs, and to consider such issues from multiple perspectives so as to draw conclusions. They should be able to discern views, attitudes and values implied in the given factual information.

Expected Student Performance

- **Knowledge**
 - In question (a), students should make reference to the source and analyse whether pharmaceutical companies should invest more in developing drugs targeting life-threatening diseases rather than lifestyle drugs. Examples of common lifestyle drugs and life-threatening diseases should be given. Students should also express their views on the dilemmas, including the moral and social implications, and consider the issue from different perspectives.
 - In question (b), students have to state clearly their stance with supporting evidence on "Education is effective in enhancing the development of public health in the less developed countries." The contextual information of the less developed countries should be highlighted as it may pose limitations on the effectiveness of education in enhancing the development of public health. Students are expected to make use of the relevant concepts such as "less developed countries", "human rights", "education", "public health" and so on.
- **Skills**
 - Giving appropriate response with a clear stance.

- Transforming textual data into higher-order knowledge and concepts.
- Providing sound arguments to justify whether pharmaceutical companies should invest more in developing drugs targeting life-threatening diseases rather than lifestyle drugs.
- Evaluating the effectiveness of education on enhancing the development of public health in the less developed countries.

-- End of Appendix –

Senior Secondary Liberal Studies

“Public Health” Module

Learning and Teaching Exemplar (4)

Studying public health policies through the case of Avian Influenza

A. Basic information of the exemplar

Topic	Studying public health policies through the case of avian influenza
Relevant modules, themes and issues for enquiry	<p><u>Leading</u> Module 5 : Public Health</p> <p>Theme 1: Understanding of Public Health</p> <ul style="list-style-type: none"> ● How did people understand the causes of diseases? Was their understanding scientific? ● How is people's understanding of health affected by economic, social and other factors? ● How is people's understanding of public health affected by the development of science and technology? ● In what ways is people's understanding of public health affected by health information, social expectations, personal values and beliefs in different cultures? <p>Theme 2: Science, technology and public health</p> <ul style="list-style-type: none"> ● Can science and technology provide effective solutions in the prevention and control of diseases? ● In the area of public health, how is the development of science and technology affected by various factors, and what issues are triggered by this development? ● What challenges do different sectors of society, the government and international organisations have in maintaining and promoting public health? <p><u>Related</u> Module 3 : Modern China ; Theme 2 : Chinese culture and modern life</p> <ul style="list-style-type: none"> ● To what extent are these traditional customs of significance to modern Chinese society?
Overall design rationale	<p>This exemplar is designed to guide students to learn about various measures and policies implemented by the government to maintain and promote public health development in controlling Avian Influenza; to explore and discuss the potential challenges faced by the government during the process. All with an aim to explain the roles and functions served by the government in dealing with infectious diseases, including the act in coordinating the concerns from various stakeholders (such as wholesalers and retailers of poultry products, the medical sector and the general public), thereby leading students to comment on the actions taken by the government and the community to</p>

	<p>combat avian influenza, and propose recommendations.</p> <p>On the other hand, this exemplar also relates to relevant content on the traditional concepts of the family in Chinese households in Module 3. By comparing their inclinations to eat chickens during traditional festivals, as well as their acceptance of and opinions on chilled chicken with those of the older generations, students may understand the relationship between avian influenza and our traditional culture, and then discuss the factors affecting the preservation and development of traditional customs in the modern society.</p>
Time required	4 lessons (40 minutes per lesson), around 160 minutes in total
Teaching objectives	<p>Knowledge:</p> <ul style="list-style-type: none"> ● To understand how information about health, social expectations, personal beliefs and values can affect decisions relating to public health or hygiene under different cultural settings. ● To understand the policies relating to infectious diseases, and the factors that affect public health. ● To think about how traditional customs should face and respond to impact brought about by the modern society. ● To understand the roles, responsibilities and limitations of various sectors in the society in promoting public health. ● To understand the importance of cross-border cooperation in maintaining public health. <p>Skills:</p> <ul style="list-style-type: none"> ● To categorise different measures and policies by their characteristics. ● To propose feasible recommendations to solve problems. ● To compare and comment on different measures or policies. ● To apply the knowledge and concepts gained in class in answering questions. <p>Values and attitudes:</p> <ul style="list-style-type: none"> ● To respect evidence, and think about public health issues based on relevant scientific knowledge in making insightful decisions. ● To appreciate and respect different cultures and opinions within a diversified society, and to handle conflicting values.

Basic concepts for application	Quality of life, health, public health, customs, health promotion, infectious diseases and epidemics, disease prevention
Relevant learning experience at junior secondary levels	Having studied various subjects of Personal, Social and Humanities Education, as well as Science Education and Technology Education Key Learning Areas, students at junior secondary levels are expected to have acquired the following knowledge: main factors affecting health and how to keep healthy; a healthy lifestyle including personal hygiene, a balanced diet, exercise and rest; the influence of technologies have on daily life; limited resources in meeting the needs of the whole community; culture as a factor in the use of science and technology, etc. If teachers think that students lack basic knowledge, it is recommended that a brief introduction should be made to students before using this exemplar.

B. Design of classroom learning and teaching

Lesson	Learning and teaching strategies and flow
1	<p><u>Lead-in activity 1 (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● By introducing “the life of a chicken” (the process a chicken goes through to end up in the table of a household in Hong Kong from a chicken house in the Mainland), help students understand the sources and processes for food; identify stakeholders relating to avian influenza and their respective responsibilities, limitations and points of interest; and study the health risks involved in the processes (Appendix 1). Teachers may also ask students to read the sources in Appendix 1, or otherwise ask them to play the role of “chickens” in class. This aims to help students construct knowledge and concepts relating to disease prevention based on real life experiences. <p><u>Group discussion activity 1 (around 15 minutes)</u></p> <ul style="list-style-type: none"> ● Guide students to read sources B and C, and subsequently organise and complete the table in Appendix 1. Students are required to point out the stakeholders/government departments concerned, possible risks/crises causing the avian influenza, and methods to lower the risk of infecting avian influenza. Introduce relevant knowledge about food safety in this section. ● Ask students to discuss in groups and review their answers together. <p><u>Teacher summary (around 15 minutes)</u></p> <ul style="list-style-type: none"> ● Randomly ask students to give answers (determine the number of students to be asked based on lesson time). In response to the answers given by students, point out the means by which cross-border cooperation among different departments can effectively prevent the transmission of avian influenza. ● What people/stakeholders/government departments would come into contact with the chickens? For example: <ul style="list-style-type: none"> ➤ (Birth and growth) Mainland chicken farms and chicken farmers that have been registered with Hong Kong’s Centre for Food Safety, the Food and Environmental Hygiene Department (which will send staff members to carry out investigations at the relevant farms in the event of an avian influenza outbreak among chickens) ➤ (Migration) The Agriculture, Fisheries and Conservation Department, the Food and Environmental Hygiene Department (Cheung Sha Wan Wholesale Poultry Market), quarantine staff,

Lesson	Learning and teaching strategies and flow
	<p>transportation workers and drivers</p> <ul style="list-style-type: none"> ➤ (Selling) The Food and Environmental Hygiene Department, transportation workers, drivers, chicken vendors, workers and customers ➤ (Slaughtering) The Food and Environmental Hygiene Department, chicken vendors and workers ➤ (Cooking and consumption) (if infected) The Department of Health (the Centre for Health Protection), citizens who consume chickens (customers) <ul style="list-style-type: none"> ● Risks/crises causing avian influenza, such as: <ul style="list-style-type: none"> ➤ (Birth and growth) Coming into contact with and be infected by birds that have themselves been infected ➤ (Migration) Cross-infection between imported and local chickens, loopholes in the quarantine processes ➤ (Selling) Staff members and customers failing to thoroughly clean and disinfect themselves after coming into contact with chickens, coops not thoroughly cleaned, infections among live chickens, markets of live chickens locating in close proximity to residential areas ➤ (Cooking and consumption) Consuming undercooked or infected chickens ● Methods to lower the risk of infecting avian influenza, such as: <ul style="list-style-type: none"> ➤ (Birth and growth) Vaccination (for Mainland chicken farms that have been registered with Hong Kong's Centre for Food Safety), preventing chickens from coming into contact with wild birds and being infected (chicken farmers), maintaining environmental hygiene (for registered Mainland chicken farms) ➤ (Migration) The Government separating the storage of imported and local live chickens, relocating wholesale market(s), a complete ban on live chickens imported from the Mainland ➤ (Selling) Thorough cleaning and sterilising on a daily basis after the closure of markets (chicken vendors, workers, the Food and Environmental Hygiene Department), working staff (transportation workers, drivers, chicken vendors and workers) must be dressed in sanitary protecting clothing ➤ (Cooking and consumption) Thoroughly cooking poultry and eggs ● This lesson deals with safety matters relating to food manufacture and the crisis of avian influenza in Hong Kong. Guide students to consider

Lesson	Learning and teaching strategies and flow
	the respective solutions based on the sources of the problems as part of the problem-solving process.
2	<p data-bbox="384 349 767 383"><u>Lead-in (around 5 minutes)</u></p> <ul data-bbox="384 394 1377 573" style="list-style-type: none"> ● Based on the background knowledge gained from Activity 1, students are required to discuss in groups, guide students to perform the task of categorisation using their own methods (prompts can be given by drawing lots - see the following part for details). <p data-bbox="384 589 1050 622"><u>Group Discussion activity 2 (around 25 minutes)</u></p> <ul data-bbox="384 633 1377 1238" style="list-style-type: none"> ● Ask students to categorise different methods as set out in the column of “Ways to prevent infection with avian influenza” of the table for Activity 1 using mind maps (Appendix 2) ● Give hints to students by drawing lots and allow each group to draw one method of categorisation (the categorisation is based on different dimensions): such as “stakeholders”, “education/quarantine/administration/health”, “reducing the number of chickens infected/reducing contact between human and chickens”, “short term/long term”, “addressing the symptoms of the problem/solving the problem at root”, etc. By doing so, students will be taught with different methods of categorisation. In addition to providing answers from multiple perspectives, the difficulty of the lesson will be lowered and lesson time will also be saved. <p data-bbox="384 1261 1377 1339"><u>Teacher summary and giving out after-class assignment (around 10 minutes)</u></p> <ul data-bbox="384 1350 1377 1814" style="list-style-type: none"> ● Guide students to answer the following questions based on the sources and their mind maps: “In order to lower the risk of avian influenza in Hong Kong brought about by chickens, which action stage of the measures taken would yield the greatest effect? Why?” ● Introduce the concepts of <u>infectious diseases and epidemics</u> and <u>diseases prevention</u>. Remind students that measures taken before live chickens imported to Hong Kong would be the most effective. As a measure under the first stage prevention, it can prevent the virus from entering Hong Kong’s communities, and is therefore directed at the most fundamental factor to “reducing contact”.
3	<p data-bbox="384 1836 767 1870"><u>Lead-in (around 5 minutes)</u></p> <ul data-bbox="384 1881 1377 2049" style="list-style-type: none"> ● Introduce the objective for the following activity: to identify various stakeholders of the issue(s), including the medical sector, wholesalers and retailers of poultry products, the government, the Food and Beverage industry (restaurants) and citizens (who love eating chicken),

Lesson	Learning and teaching strategies and flow
	<p>and their different stances, disputed points as well as concerns regarding “banning the importation of live chickens from the Mainland”.</p> <p><u>Group discussion activity 3 (around 30 minutes)</u></p> <ul style="list-style-type: none"> ● Guide students to read the sources of Appendix 3, and apply the basic knowledge gained from Activities 1 and 2 to find out the stances, values and concerns for various stakeholders, including: <ul style="list-style-type: none"> ➤ Identifying the stances of the stakeholders assigned, and the reasons and the arguments they hold ➤ Proposing a question to each of the other stakeholders, one that is able to point out what is contradictory with one’s own stance (or otherwise be able to support one’s own stance) ● To analyse the stances, reasons and concerns regarding “banning the importation of live chickens from the Mainland” with multiple perspectives, and then fill in the table of Appendix 3. For example: <ul style="list-style-type: none"> ➤ From a medical perspective: for (stance), first stage of <u>disease prevention</u> (reason), valuing <u>public health</u> and <u>health</u> (concern). ➤ From an economic perspective: against (stance), adversely affecting one’s livelihood (reason), personal interests, such as income and work opportunities (concern) ➤ From a political perspective: for (stance), the necessity to ensure overall social health and lower the burden of public expenditure on health (reason), overall social interests and productivity, level of governance, public fiscal burdens (concern) ➤ From a cultural perspective: against (stance), eating fresh chicken is a traditional dietary culture of the local people, fresh chicken taste better (reason), cultural inheritance, enjoyment of life (concern) <p>In addition to students filling in the table as mentioned above, teachers may guide students to carry out the following extended discussions based on the results of their presentations (Consider whether to ask all the questions depending on students’ abilities):</p> <ul style="list-style-type: none"> ➤ From your assigned perspective(s), point out the difficulties you have encountered in dealing with this issue? (This question can guide students to deal with the concerned “limitations” and “disputed points”) ➤ From your assigned perspective(s), point out the contributions that can be made regarding this issue? (This question can guide

Lesson	Learning and teaching strategies and flow
	<p>students to deal with the unique responsibilities or contributions of the respective roles, so that further questions as listed below can be asked)</p> <ul style="list-style-type: none"> ➤ From a political perspective, how can various sectors of the society assist the government in dealing with avian influenza? (This question could emphasise that the government needs to consider the advice of various sectors in handling this issue) ➤ Which of the perspectives considered do you think is the most crucial one for assisting the government in dealing with the issue? Why? (This question can guide students to think about what makes the “most” crucial aspects to be considered in arriving at a balanced decision in policy-making; students need to reach an agreement with others during the discussion, find out the “most” crucial roles, reasons and arguments for the decision, and come to realise the effects that personal values have on the society, as well as to understand that “public health” lies in the centre of the decision making process) ➤ Among a great number of roles, what are the unique roles or specific functions played by the government? (Teachers may summarise the functions, roles and limitations of the government, for example: the government is mostly concerned about health risks.) <p>By means of questioning and enquiring over the above discussion, students should understand the three stages in disease prevention, the importance of health promotion, and the contributions of medical technology (such as vaccines).</p> <p><u>Teacher summary and after-class assignment (around 5 minutes)</u></p> <ul style="list-style-type: none"> ● Guide students to answer the question of Appendix 4: Identify the conflicts that may arise from the issue of “banning the importation of live chickens from the Mainland”, and explain your answer. Students should be able to match the considerations and conflicts of different perspectives as mentioned in the above table, elaborate on their arguments, and identify at least 3 disputed points. During the discussion, it is necessary to guide students to provide appropriate responses to opposite arguments, so as to enable various roles to reach an agreement under different settings of values, concerns and limitations, and thus resolve social issues. Summarise the appropriate ways to handle conflicts, as well the possible contributions made by

Lesson	Learning and teaching strategies and flow
	<p>various sectors of the society in discussing the issue.</p> <ul style="list-style-type: none"> ● Ask students to complete the “opinion survey on banning the sale of live chickens” with family members (Appendix 5) before the next lesson.
4	<p><u>Lead-in and discussion (around 30 minutes)</u></p> <ul style="list-style-type: none"> ● Instruct students to read on the “opinion survey on banning the sale of live chickens” (Appendix 5) ● Ask students the following questions, then conduct a survey on the inclinations of the eating chicken in class: <ol style="list-style-type: none"> i. How many students in the class are willing to substitute chilled chickens for live chickens as an ingredient for dishes served during traditional Chinese festivals? ii. How many family members of the classmates are willing to substitute chilled chickens for live chickens as an ingredient for dishes served during traditional Chinese festivals? iii. How many students in the class are willing to give up eating chickens during traditional Chinese festivals? iv. How many family members of the classmates are willing to give up chickens during traditional Chinese festivals? v. What criteria do your family members consider when deciding whether to eat chicken? ● Ask students to make comparisons between the survey of the class and those of the public opinion survey mentioned in the earlier lesson, identify the difference between the attitudes adopted by Hong Kong citizens in general and those of the next generation, and discuss its possible reasons. Ask students to identify the values or changes in values as reflected in such phenomena (they reflect the fact that culture is subject to constant evolutions, therefore any conflicts involved may also change. For example, while students may be more inclined to eat chilled chickens, or even forgo eating chickens all together during traditional festivals, their choice may be different from that made by older generations/citizens in Hong Kong). Take the opportunity to highlight the relationship between the avian influenza outbreak in Hong Kong and the traditional cultures, and inspire discussion about factors affecting the preservation and development of traditional customs in the modern society.

Lesson	Learning and teaching strategies and flow
	<p><u>Teacher summary and after-class assignment (around 10 minutes)</u></p> <ul style="list-style-type: none"> ● Summary: Reiterate the relationship between various disputed points in the issue and traditional Chinese culture. ● With reference to “the most effective methods to lower the risk of infecting avian influenza” as discussed in Activity 2, ask students to answer the following question: “To what extent do you agree with the view that “given the current situation in Hong Kong, ‘banning the importation of live chickens from the Mainland’ is the most appropriate method to prevent the outbreak of avian influenza? Explain your answer.” (Appendix 6) ● Guide students to deal with this type of questions that involve “comparisons”, including proposing at least 2 other methods, and making comparisons based on the same criteria (such as comparative criteria like urgency, technology and cost); students should be able to apply concepts acquired to answer the question (consider deleting the word “most” in the question if students’ abilities prove to be lacking, whereby students only need to describe the advantages and disadvantages of specific measures, but not to make comparisons with other measures).

-- End of learning and teaching exemplar --

Appendix 1: “The Life of a Chicken”

Stage 1: Birth



Hi everybody! My name is Little Beauty! My kind receives a lot of support from many of the Hong Kong people, but do you know our life story? Little White and Little Yellow are my close friends, and this is our story.



Little White



Little Yellow

I grew up in a chicken farm in the mainland. However, not all chickens growing up in a chicken farm in the mainland have the opportunity to go to Hong Kong. In order to visit Hong Kong, one has to come from one of the “renowned establishments”, namely farms that have been registered with the “Centre for Food Safety” to supply chickens for Hong Kong. As you can see, we live in a very crowded place!

I met Little White and Little Yellow in this farm. We were all born in a chicken farm in the mainland. As our growth period was about 100 days, our birth dates were specifically chosen so that we could hit the market during the Chinese New Year. Our farmer uncles had us vaccinated shortly after we were born, hoping that we would stay healthy and grow up quickly!

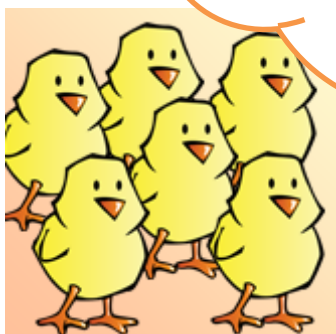
Stage 2: Growth

I was moved into a new place, a multi-storey building. Little Yellow was a free-range chicken, so she enjoyed a big garden! That being said, because Little Yellow enjoyed much freedom, many outside birds often came to visit her home; as a result, her home was filled with viruses. Little Yellow later caught flu, and Little White and I never saw her again! Thanks to separation nets and the protection and monitoring of our farmer uncles, Little White and I never had the opportunity to come into contact with those bad friends from the outside (birds), so we were able to stay healthy even during the peak of the flu. What's more, many officials from the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China often came to inspect on the hygienic environment of our facilities!



Stage 3: Migration

Finally, Hong Kong, here we came! Our chicken house had to get the relevant certificates of approval for us before taking us in trucks to Hong Kong. We had to wait for 1 or 2 days when going through Man Kam To, one saw nothing but "chicken heads" during the clearance process. Thousands of peers were allowed to go to Hong Kong per day! The Agriculture, Fisheries and Conservation Department would perform various checks and tests on us, after which we took trucks to the Cheung Sha Wan Wholesale Poultry Market. We could only make it to the market if we were healthy. Here I met a lot of my kind who grew up in Hong Kong, they were also being inspected.



Farewell, Little chicken...

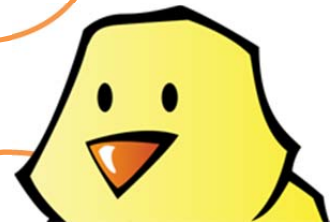
Poor Little White! Prior to immigrating to Hong Kong, Little White and her classmates had all been subject to centralised slaughtering after quarantine inspection in the mainland, and they all became “chilled chickens”! Though we came to Hong Kong together, I never thought that Little White would not have the opportunity to see just how supportive the Hong Kong people were of us. Farewell... Little White!

Stage 4: Hit the market

I finally made it to Hong Kong! But in order to make sure that chicken stalls were virus-free, their owners had to clean all things out on a daily basis. The owner of my stall liked things clean, so I often saw him cleaning our habitat to ensure the health of chickens and people alike. In addition, uncles from the Food and Environmental Hygiene Department often visited us to carry out inspections!

Stage 5: Farewell

I finally met the one who appreciated me, that was Mrs. Chan! She appreciated me for my energy and strength. Having to prepare for the reunion dinner tonight, she came to the chicken stall quite early this morning, and I was not a cheap chicken! Despite having to make the ultimate sacrifice for my “fans”, I, a healthy chicken, felt that my life was worth something as I could bring them joy and nutrition. Our farmer uncles were always worried that our sickness would make others and ourselves suffer. Humans would have to be hospitalised to receive treatment if they caught avian influenza. I wish everybody a healthy life!



Source B

Procedures for chicken slaughtering and the risk of spreading the avian influenza virus

Processes

1. Kill the chicken and cut the neck for draining blood

Risk of spreading the virus: The risk is relatively high because the blood of a chicken infected with the disease contains the virus. The possibility of infection is even higher for chicken vendors who have wounds

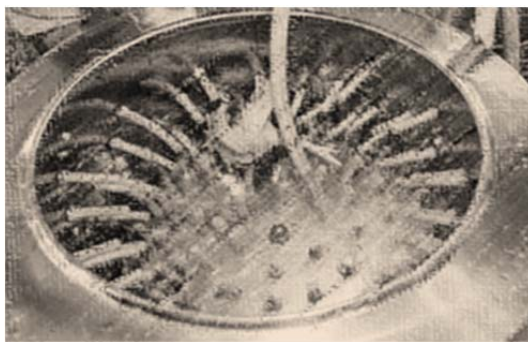
2. Scald chickens that have been drained of blood in containers with hot (60 to 70 degrees) water to soften the feathers. Hot water will generate a large amount of steam

Risk of spreading the virus: The risk is relatively low because hot water helps kill the virus. It is supposed that inhaling the steam will not cause infections; however, scalding chickens in hot water for a short period of time will not be able to kill all the viruses.



3. Pluck chickens by putting them into heated pluckers with rubber fingers. Chickens will be spun in the pluckers at high-speed for several minutes

Risk of spreading the virus: The risks exists because high-speed spinning may break off the particle droplets and faeces from infected chickens, which together would form small and solid particles that float in the air, exposing people in close proximity to the danger of inhaling the virus.



Source: “指轉動令帶毒水點霧化 內地疾控憂街市拔毛機播毒”, 20 April 2013, *Ming Pao*.

Source C




Facts about avian influenza:



- ☞ People mainly become infected with the avian influenza virus through close contact with infected birds and poultry (live or dead) or their droppings. Outbreaks of avian influenza among poultry have been reported in some Asian countries in recent years, and some cases of human infection have been reported.
- ☞ A number of cases of the avian influenza virus have been detected in Hong Kong since 1997. In addition, the society has to pay for the cost of slaughtering chickens each time, including compensation for local chicken farmers and retailers.
- ☞ Currently, chickens available for sale in Hong Kong include: live chickens supplied by local chicken houses (accounting for approximately 60% of total number of live chickens sold), live and chilled chickens supplied by Mainland chicken houses, and frozen chickens imported from abroad.
- ☞ In accordance with the *Imported Game, Meat and Poultry Regulations*, nobody is allowed to import any game, meat or poultry without prior written permission granted by the Food and Environmental Hygiene Department, but cooked meat is not subject to regulation by laws.
- ☞ In order to avoid the local outbreak of avian influenza, the government once proposed to set up a centralised poultry slaughtering centre (PSC).
- ☞ Some local chicken farmers suggested that local live chickens should be separated from those imported from the Mainland in the Cheung Sha Wan Wholesale Poultry Market, in order to reduce the risk of cross-infection during the waiting period (5 days) for lab test results.
- ☞ The current government policy in force dictates: live chickens shall be imported from the Mainland and supplied by local licensed chicken houses, and a certain number of retail outlets for live chickens shall be maintained. Chicken houses and retail outlets for live chickens must be properly cleaned and disinfected, and the culling operation and the prohibition on the sale of live chickens will be imminent in the event of reported cases of avian influenza.
- ☞ The primary concern of the government policy is to meet the needs of some citizens who insist on the consumption of live chickens. By stabilising the supply and curbing the price of live chickens through the dual supply chain comprising live chickens from the Mainland and local chicken houses, the government aims at allowing the operators of retail outlets for live chickens to maintain their livelihood while safeguarding the safety of public health.

Sources:

1. Avian Influenza. The web page of the Centre for Health Protection of the Department of Health of the Government of the HKSAR. Retrieved from <http://www.chp.gov.hk/en/content/9/24/13.html>
2. 重提禁活雞 CY 決心成疑” , 29 January 2014, Ming Pao.
3. “HER：清明咪走雞 暖笠笠送上門” , 5 April 2010, Apply Daily.
4. “中央屠宰改選址新界西北” , 5 February 2006, life.mingpao.com (明報通識網).
5. “政府物色地方分隔活雞” , 8 February 2014, Sing Tao Daily.
6. 食無活雞的政策考量” , 5 February 2014, Ming Pao.

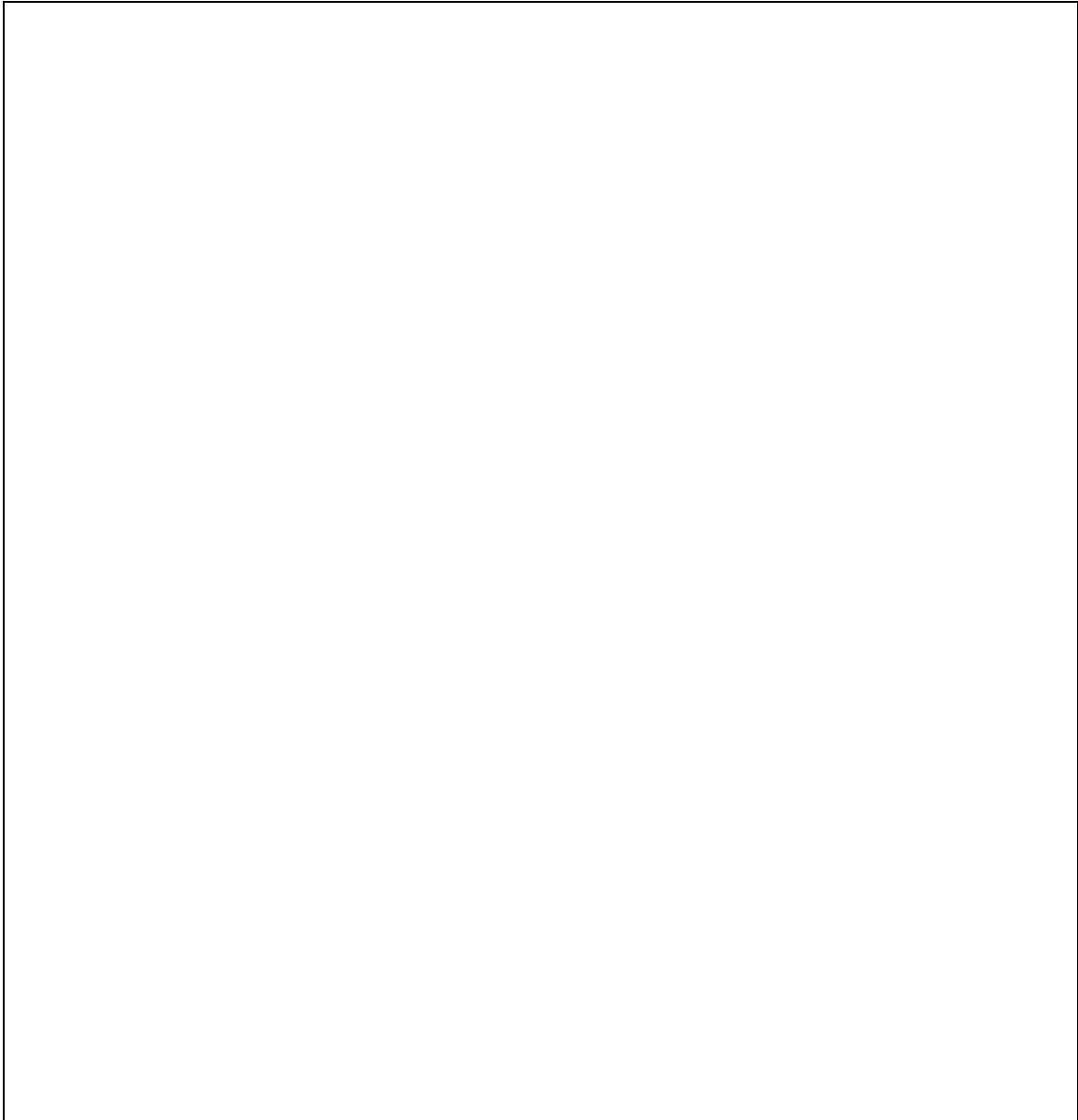
Try to sort out the information in Sources A, B and C, and then complete the following table (about the supply process of live chickens from the Mainland to Hong Kong and the risks of public health involved):

Stages	Birth and growth →	Migration: Arrival at Hong Kong →	Sale →
Locations	 <p>Chicken houses</p>	 <p>Man Kam To → Cheung Sha Wan Wholesale Poultry Market</p>	 <p>Markets (retail outlets)</p>
Those would come into contact with the chickens /relevant stakeholders or government departments involved	Mainland chicken houses and farmers that have been registered with the Centre for Food Safety, the Food and Environmental Hygiene Department (which will carry out investigations at the farms in the event of avian influenza outbreaks)		
Possible risks/crises causing avian influenza	Chicken farmers / workers that come into contact with infected poultry and become infected		
Ways to prevent infection with avian influenza	Vaccination should be administered to chickens (a measure required to be taken by Mainland chicken houses that have been registered with the Centre for Food Safety); Chicken farmers / workers should prevent chickens from coming into contact with wild birds; Registered Mainland chicken houses are required to maintain environmental hygiene		

Stages	Slaughtering →	Cooking and consumption
Locations	 Markets (retail outlets)	 Homes of consumers
Those would come into contact with the chickens /relevant stakeholders or government departments involved		
Possible risks/crises causing avian influenza		
Ways to prevent infection with avian influenza		

Appendix 2: Problem-solving and Categorisation

With reference to the table of Activity 1, draw a mind map in groups to categorise “ways to prevent infection with avian influenza”.



With reference to the sources above, which stage would yield the greatest effect in order to lower the risk of avian influenza brought about by chickens in Hong Kong? Why?

Appendix 3: Group Discussion

The following sets out the different perspectives considered for the importation of live chickens from the Mainland to Hong Kong. Identify the reasons, arguments and concerns from different perspectives (students may discuss in groups. In light of its difficulty, it is advised that two groups of students can conduct role play when the political perspective is considered)

1. From a medical perspective

- According to earlier research studies by the School of Public Health of the University of Hong Kong, by comparing the percentages of hospitalisation cases of avian influenza before and after the suspension of live poultry markets in four cities, namely, Nanjing, Shanghai, Hangzhou and Huzhou, it is projected that the closing of live poultry markets can reduce the risk of humans infecting with avian influenza by 97% to 99%.
- According to the Director of the Centre of Infection and Immunity, the University of Hong Kong, not only would focusing on the study of separating local and Mainland live chickens offer no permanent solution, it would also fail as a temporary fix, as the risk of human infections still exist. Therefore, a timeframe should be developed for the gradual closure of live poultry markets and eventually achieving a full stop to the sale of live chickens.
- The President of the New Territories Chicken Breeders Association hopes that the government would designate an appropriate place for keeping live chickens imported to Hong Kong from the Mainland during the waiting period for lab test results; the aim of which is to achieve the separation of local and Mainland live chickens, thereby reducing the risk of cross infection during the said period.

2. From an economic perspective

- According to a local chicken farmer, “an outbreak of avian influenza will undoubtedly affect the livelihood of industry players, including farmers, transportation workers, wholesalers, retailers and workers etc.” He added that farmers invest a lot of money into the business. His chicken house takes in an investment of over HK\$10 million. In addition, avian influenza mainly originated from the Mainland live chickens, with very few cases of infection reported in the local chicken houses. In response to the question of whether he would consider withdrawing from the chicken farming industry, he said that it would be difficult to carry on in a shrinking retail market for live

chickens.

- According to a chicken vendor, fresh chickens are the customers' favourite. She believes that the consumption of fresh chickens is one of the unique dietary cultures in Hong Kong, hoping that the government would not impose a ban on it. Another chicken vendor said, "I have been a chicken vendor for several decades. I surely hope I could continue to make a living on it. If the government decides to ban it, I would have no choice but to join the ranks of the unemployed, and so would the transportation sector, feed suppliers and even chicken farmers."
- A Chinese restaurant manager believes that chilled chickens and fresh chickens can both be offered at a variety of prices, catering to the needs of different customers and hence have their own values. In light of its long history, epidemic prevention should not be used as an excuse to kill the entire poultry industry in Hong Kong, and local live chickens should be preserved to allow choices for customers.

3. From a political perspective

- In order to maintain public health, the government is expected to implement multiple measures to reduce the risk of an avian influenza outbreak in Hong Kong.
- The government appropriated approximately HK\$17 million of exgratia payment to the local live poultry industry during the outbreak of avian influenza in January 2014.
- In January 2014, Chief Executive Leung Chun-ying reiterated his suggestion to all sectors to consider whether eating fresh chickens is a must for them.
- In 2008, the government introduced a Voluntary Surrender Scheme for Livestock Keeping Licences, leading to a sharp decline in the local supply of live chickens. As a result, centralised slaughtering was rendered unfeasible and eventually suspended in 2010. According to Ko Wing-man, the Secretary for Food and Health, the number of fresh chickens consumed by Hong Kong people has decreased from 100,000 per day to less than 20,000 per day in the last decade, casting doubt on the sustainability of centralised slaughtering.
- The government conducts 1,200 rapid avian influenza tests every day, incurring an estimated annual cost of more than HK\$100 million.

4. From a cultural perspective

- According to a restaurant chef, chickens are an indispensable ingredient in Cantonese cuisine. His restaurant thus uses only fresh chickens raised in Longgang. According to him, there is a difference in the texture between

fresh chickens and chilled chickens, and chilled chickens are incompatible with fresh chickens from Longgang with “sleek skins and tender meat”.

- Some members of the Legislative Council representing the agriculture and fisheries industries believe that a halt to the supply of live chickens is unacceptable, as it is a tradition for Hong Kong people to eat fresh chickens. They also suggest that avian influenza can be prevented and controlled through implementing adequate measures, as no cases of avian influenza in local chicken houses have been reported since 2008.
- According to a citizen, he never eats chilled chickens because fresh chickens “taste more like chicken”. But he also said that he would have no choice but to give chilled chickens a shot should fresh chickens be banned.
- Another citizen frankly expresses his preference for fresh chickens. He said, “Are we supposed to give up eating something because there is something wrong with it? What if that happens in the case of pigs?” He believes that the government should duly perform its duties for inspection and quarantine, and not to impose a ban on the consumption of live chickens all together.

Instruction:

Students are expected to complete the following tasks after reading relevant sources about the respective perspectives considered:

1. Identify the stance and justification for the perspectives considered
2. Propose a question to each of the other groups, of which the content is different from one’s own stance (or otherwise be able to support one’s own stance)

Point out the stances, reasons and concerns of the respective perspectives regarding “banning the importation of live chickens from the Mainland”:

Perspectives and stances	Reasons	Concerns

Appendix 4: After-class Assignment

Identify the conflicts that may arise from the issue of “banning the importation of live chickens from the Mainland”. Explain your answer.

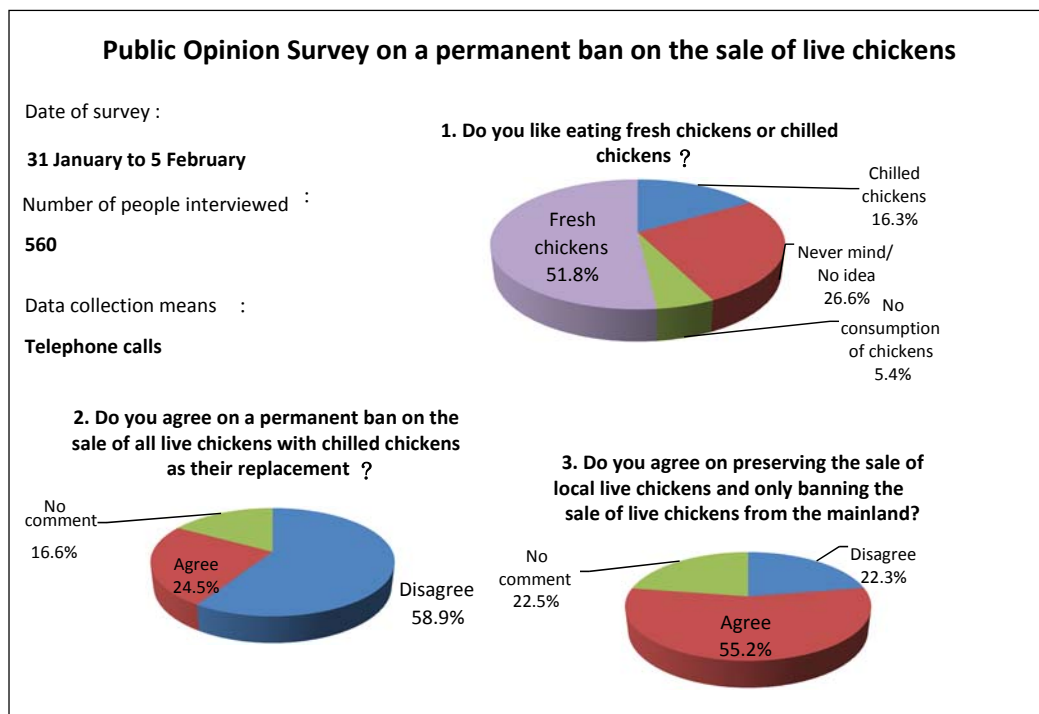
Appendix 5: Activity 4 –**Avian Influenza vs. Traditional Chinese Culture Small-scale survey in class**

Before the lesson, interview your family about their habits of, and views on eating chickens.

Number of family members in your household: _____

1. Did you eat chicken during the last festival? If you did, what was the dish?	
2. Are you willing to substitute chilled chickens for fresh chickens as an ingredient for dishes served during traditional Chinese festivals?	
3. How many of your family members are willing to substitute chilled chickens for fresh chickens as an ingredient for dishes served on traditional Chinese festivals?	
4. Are you willing to forgo eating chickens during traditional Chinese festivals?	
5. How many of your family members are willing to give up eating chickens during traditional Chinese festivals?	

Source D



Source: “明報民調：六成人不撐永久禁活雞 米芝蓮食肆寧停菜式 拒用冰鮮雞”，6 February, 2014, *Ming Pao*.

Retrieved from <http://specials.mingpao.com/cfm/News.cfm?SpecialsID=274&News=dlbe16b3286b639950a48793ad4e439014608785ad4d6232dca441>

Additional information:

The prevailing retail price for an ordinary chilled chicken ranges from approximately HK\$50 to HK\$70 as compared to approximately HK\$200 for a live chicken. The prices would be slightly higher during traditional Chinese festivals.

Small-scale survey in class

1. How many students in the class are willing to substitute chilled chickens for fresh chickens as an ingredient for dishes served during traditional Chinese festivals?

_____/_____

2. How many family members of the classmates are willing to substitute chilled chickens for fresh chickens as an ingredient for dishes served during traditional Chinese festivals?

_____/_____

3. How many students in the class are willing to give up eating chickens during traditional Chinese festivals?

_____/_____

4. How many family members of the classmates are willing to give up eating chickens during traditional Chinese festivals?

_____/_____

Appendix 6: Summary and After-class Assignment

With reference to the “ways to prevent infection with avian influenza” in Activity 2, some people proposed that “given the current situation in Hong Kong, ‘banning the importation of live chickens’ is the most appropriate way to prevent the outbreak of avian influenza”? Explain your answer.

Intention of Assessment

Assessment Focus

Students are expected to integrate the data provided in the lesson with their knowledge to suggest ways to combat avian influenza in the context of Hong Kong, and evaluate whether banning the importation of live chickens is the most appropriate method to prevent an outbreak of avian influenza. Students are expected to make use of perspectives such as effectiveness, degree of acceptance among citizens and cost-effectiveness, and to apply relevant concepts such as “health prevention”, “health promotion”, “health expenditure”, “medical technology”, “public health”, “Chinese traditional customs”, “quality of life”, “information-sharing mechanism”, “public policy”, “health risk”, “food safety”, “overall interests of the community” and “governance” for analysis. For the assessment focus of students’ enquiry skills, students should be able to demonstrate skills like giving suggestions, making comparisons, evaluating effectiveness. Students could also reflect their value orientation in using the selected criterion for comparison.

Expected Student Performance

- Knowledge
 - Students need to integrate the data provided with their knowledge to suggest ways to combat avian influenza in the context of Hong Kong, and to choose the most appropriate method with the use of selected criterion for comparison. For example, explain and exemplify each method in terms of cost, such as human resources, technology (finance, human capital, availability of time), degree of acceptance among citizens (money, Chinese tradition, eating habits) in the context of Hong Kong. Students should also apply relevant concepts such as “health prevention”, “health promotion”, “Chinese traditional customs”, “quality of life”, “public health”, “information-sharing mechanism”, “health expenditure”, “medical technology”, “public policy” for a reasoned analysis.

- Skills
 - Giving appropriate responses, generalising and selecting appropriate data.
 - Using the concepts and knowledge in the lessons and giving clear personal stance supported by relevant evidence.
 - Using some criterion for comparison to compare the appropriateness of different methods or measures.

-- End of Appendix --

Part IV: Extended Reading and Reference Materials

This part provides teachers with extended reading and reference materials relating to the curriculum in this module, which are divided into Categories A and B for teachers' choice.

Part A is a reference list of publications which consists of the learning and teaching focuses in this module for teachers' reference in lesson preparation, and for teachers to gain a more in-depth understanding of the theoretical basis and trends associated with the issues for enquiry. Specific examples are also provided to enrich classroom learning and teaching. Publications for student reading are underlined. Teachers may encourage students to read these publications in accordance with their levels. Publications available from public libraries are also accompanied by call numbers to assist teachers and students.

Part B consists of learning and teaching resources available on the “Web-based Resource Platform for Liberal Studies” (<http://ls.edb.hkedcity.net/>) and are relevant to this module. These resources can be used for teachers' reference in lesson preparation, and some of them can be adapted for use in worksheets, after-class assignments or internal assessment. Teachers who have registered as members of the Hong Kong Education City are entitled to view and download resources after logging in the section for teachers and using personal passwords.

Teachers should note that all materials recommended in this part are for reference only and they are not designated readings. Please choose any and use them according to your school context.

- A. **Publications** (Publications for student reading are underlined, the public library information are updated as at May 2015)

Abraham, T. (2004). *Twenty-first century plague : The story of SARS*. Hong Kong : Hong Kong University Press. (Hong Kong Public Libraries call number : 614.54 ABR)

Christensen, C. M. et al. (Ed.) (2009). *The innovator's prescription : A disruptive solution for health care*. New York : McGraw-Hill. (Hong Kong Public Libraries call number : 362.1 CHR)

Freedman, J.(2009). *The mental and physical effects of obesity*. New York: Rosen Pub. (Hong Kong Public Libraries call number : 362.196398 FRE)

Institute of Medicine (2003). *Future of the public's health in the 21st century*. Washington, DC: National Academies Press. (Hong Kong Public Libraries call number : 362.10973 FUT)

Kolata G. B. (2001). Flu : the story of the great influenza pandemic of 1918 and the search for the virus that caused it. New York : Touchstone. (Hong Kong Public Libraries call number : 616.203 KOL)

Leung, G. M. & Bacon-Shone, J. (2006). *Hong Kong's health system : Reflections, perspectives and visions*. Hong Kong : Hong Kong University Press. (Hong Kong Public Libraries call number : 362.11095125 HON)

Loh, C., & Civic Exchange (Eds) (2004). *At the epicentre : Hong Kong and the SARS outbreak*. Hong Kong: Hong Kong University Press. (Hong Kong Public Libraries call number : 614.54 ATT)

Scriven, A. & Orme, J. (Eds) (2001). *Health promotion : Professional perspectives*. New York : Palgrave in association with Open University.

Taylor, S. E. (2009). *Health Psychology*. New York : McGraw-Hill.

White, K. (2002). *An introduction to the Sociology of health and illness*. London : Sage Publications. (Hong Kong Public Libraries call number : 362.1 WHI)

- Wilson, K. A. & Teitel, M. (2001). Genetically engineered food : Changing the nature of nature. Rochester, Vt. : Park Street Press. (Hong Kong Public Libraries call number : 664 TEI)
- Barry, J. M.著，鍾揚等譯（2008）《大流感：最致命瘟疫的史詩》，上海：上海科技教育出版社。（香港公共圖書館索書號：415.26 1077）
- Callahan, G. N.著，陳芷翎譯（2007）《感染 ---- 細菌、病毒、微生物與人類的糾葛之謎》，台北：原水文化。（香港公共圖書館索書號：415.26 2077）
- Drexler, M.著，陳信宏譯（2007）《微型殺手 ---- 揭開新興傳染病威脅的真相》，台北：先覺出版股份有限公司。
- Popkin, B.著，楊桂玲、葉亞萍譯（2012）《世界是肥的：生活型態、廣告以及政策背後的黑暗陰謀》，台北：商高寶國際有限公司。（香港公共圖書館索書號 411.3 1012）
- Sams, C.著，黃又林譯（2004）《食物的背後：脆弱的地球》，香港：三聯書店（香港）有限公司。（香港公共圖書館索書號：411.3 9089）
- Tudge, C.著，廉萍譯（2002）《未來的食物》，香港：三聯書店（香港）有限公司。（香港公共圖書館索書號：411.3 3536）
- 方玉輝、趙長成（2013）《防治流感新攻略》，香港：萬里機構·萬里書店。（香港公共圖書館索書號：415.26 3573）
- 史考特·卡尼（Scott Carney）著，姚怡平譯（2012）《人體交易：探尋全球器官捐客、骨頭小偷、血液農夫和兒童販子的蹤跡》，台北：麥田出版社。（香港公共圖書館索書號：548.5 2078）
- 李本富、李曦（2007）《醫學倫理學十五講》，北京：北京大學出版社。（香港公共圖書館索書號：419.1 4053）
- 李瑞山（2008）《傳染病點·線·面》，香港：明窗出版社有限公司。（香港公共圖書館索書號：415.26 4012）
- 阿德里安娜·佩特里納（Adriana Petryna）等編著，許燁芳譯（2010）《全球藥物：倫理、市場與實踐》，上海：上海譯文出版社。

周勍（2007）《中國大陸食品污染》，台北：自由文化出版社。（香港公共圖書館索書號：895 7704）

林順潮（2003）《香港醫療面面觀》，香港：博益出版集團有限公司。（香港公共圖書館索書號：412.13914423）

馬克·扎克（Mark W. Zacher）及塔尼亞·科菲（Tania J. Keefe）著，晉繼勇譯（2011）《因病相連：衛生治理與全球政治》，杭州：浙江大學出版社。

馬成龍（2009）《健康傳播與公共衛生》，香港：香港教育圖書公司。

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高耀潔（2008）《中國愛滋病禍：高耀潔醫生的最新證言與揭露》，香港：天地圖書有限公司。（香港公共圖書館索書號：415.6 0093）

皋永利《把脈中醫：中醫發展之思考》（2009），北京：科學技術文獻出版社。（香港公共圖書館索書號：413.07 2632）

張大慶（2007）《醫學史十五講》，北京：北京大學出版社。

陳坤（2007）《公共衛生安全》，杭州：浙江大學出版社。（香港公共圖書館索書號：412 7545）

許迪鏘（2003）《沙土啟示錄：香港社會的非典型審視》，香港：進一步多媒體有限公司。（香港公共圖書館索書號：542.09391 3431）

黃兆輝（2010）《強政勵治與醫療事故》，香港：上書局。（香港公共圖書館索書號：412.29391 4439）

傅浩堅、楊錫讓（2003）《運動健身的科學原理》，香港：商務印書館。（香港公共圖書館索書號：528.9011 3222）

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區結成（2004）《當中醫遇上西醫：歷史與省思》，香港：三聯書店（香港）有限公司。（香港公共圖書館索書號：413.07 7125）

張樹政、張樹庸等（2003）《科學家談生物科技》，香港：萬里書店。（香港公共圖書館索書號：3651141）

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《網絡與書》編輯部主編（2011）《醫療與養生：健康的時尚》，北京：現代出版社。

濱田篤郎著，曾維貞譯（2005 年）《疾病的世界地圖》，台北：時報文化。（香港公共圖書館索書號：411 3683）

B. Relevant resources on the Web-based Resource Platform for Liberal Studies

1. Teaching Packages

- 肥胖對青少年身體健康及心理的影響
- 青少年吸毒問題
- 濫用抗生素
- 醫療失誤

2. Publicised Resources

- 教育局通識教育組（2011）《透視科學、科技與環境議題》

3. Resource Sheets

- 香港疫症個案：登革熱
- 香港的公共衛生政策：籌建中醫院及相關的爭議
- 健康資訊的傳播和監管：醫學美容
- 跨國公共衛生事務：國際社會協作應對西非伊波拉病毒的蔓延
- 香港防疫措施：兒童疫苗資助計劃（補種十三價疫苗）
- 食物安全與規管：美國擬全面禁用人工反式脂肪
- 疫症個案：鼠疫（十九世紀後期香港及 2012 年四川省甘孜州）
- 國際醫療協作：中國援外醫療隊成立五十年（1963-2013）
- 個人生活模式與健康的關係：香港兒童肥胖情況
- 藥物專利權：印度拒絕瑞士諾華（Novartis）藥廠的專利申請
- 醫療科技發展在人倫道德上的爭議：器官捐贈與買賣

4. Exemplars of Internal Assessment

Data-response Questions	Extended-response Questions
<ul style="list-style-type: none"> ● 青少年吸毒問題 ● 藥物專利權 ● 自願醫保計劃諮詢 ● 內地食物安全 ● 內地孕婦來港分娩 ● 代母產子 ● 疾病與工作 ● 香港慢性健康問題 ● 醫療美容 ● 快餐文化 ● 中西醫 ● 青少年情緒問題 	<ul style="list-style-type: none"> ● 甲型 H1N1 大流行性流感疫苗接種 ● 醫療事故 ● 肥胖與飲食習慣 ● 新沙士與 H7N9 ● 基因食物的危與機 ● 藥物發展 ● 「緩慢生活」運動

<ul style="list-style-type: none"> ● 器官捐贈 ● 自願醫療保險計劃 ● 驗毒助康復計劃 ● 兒童美容 	
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5. **Learning Objects**

- 香港疫症個案：登革熱
- 香港的公共衛生政策：籌建中醫院及相關的爭議
- 健康資訊的傳播和監管：醫學美容
- 跨國公共衛生事務：國際社會協作應對西非伊波拉病毒的蔓延
- 香港防疫措施：兒童疫苗資助計劃（補種十三價疫苗）
- 食物安全與規管：美國擬全面禁用人工反式脂肪
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- 醫療科技發展在人倫道德上的爭議：器官捐贈與買賣

6. **Professional Development Programmes : Knowledge Enrichment Series**

- 李大拔教授：「肥胖症：一個超出個人健康的議題」
- 陳浩文博士：「從批判思考和倫理角度看環境保護和醫療生物科技的爭議」
- 關海山教授：「食物安全與監測」
- 張越華教授：「青少年問題：濫用藥物與越軌行為」
- 何志平博士：「中國近年的醫療衛生改革與發展」
- 梁國南教授：「疫苗在傳染病防治的應用與限制」
- 李大拔教授：「健康資訊與公共衛生」
- 李瑞山教授：「從愛滋病看公共衛生」
- 曾浩輝醫生：「以禽流感為例看公共衛生與傳染病防治」
- 何屈志淑教授：「透過政府與非政府組織合作進行文物保育」

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