St. Paul's School (Lam Tin)

Liberal Studies Teaching Plan

Module 5 Public Health

Vaccines

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Lesson Plan

Topic:	**People's understanding of public health and the development of science and technology - Vaccines**
Students:	**Average students**
Previous knowledge:	**1. Public health: Scientific understanding of causes of diseases; people's understanding of health; different factors affecting people's understanding of public health** **2. Debating competition: format and requirements**

<u>Objectives of the lesson</u>

By the end of the lessons, the students should be able to

1. understand the factors that affect people's view about vaccination policy;

2. identify and evaluate people's opinions; and

3. make rational decision and respect others' decisions.

The lessons

Procedure	Objectives achieved
1. Introduction - Each group discussed their associations with “H1N1” - Each group wrote them their ideas on paper and classify their ideas according to three categories - Group report on the board - Class discussion to clarify related concepts	--
2. Basic information about vaccination: Q&A - Teacher showed vaccination record to students - Students shared their knowledge about vaccination	--
3. Video show - Students watched the video and complete the worksheet - Class discussion on the answers and different views about vaccination	1, 2
4. Class debate - Students evaluated the vaccination policy - Students in groups prepared arguments for and against the motion - Students divided into two sides and presented their arguments in turn	1, 2, 3
5. Conclusion: assignment - Students summarized the factors underlying the arguments for/against mandatory vaccination.	1

Introduction

以科學理據減打針疑慮

女子從美返澳出現感冒症狀
經測試排除染甲型流感

滬上醫院嚴密
監控體溫超過38℃患者

中國新流感
首傳死亡病例

打甲流針四肢乏力老婦疑患吉巴氏症

多措並舉
科學應對甲型H1N1流感

潛伏期：1-7天最佳治療期
發病初48小時隔離觀察：7天

全社會都應積極防疫

防H1N1呈抗藥性 慎用特敏福

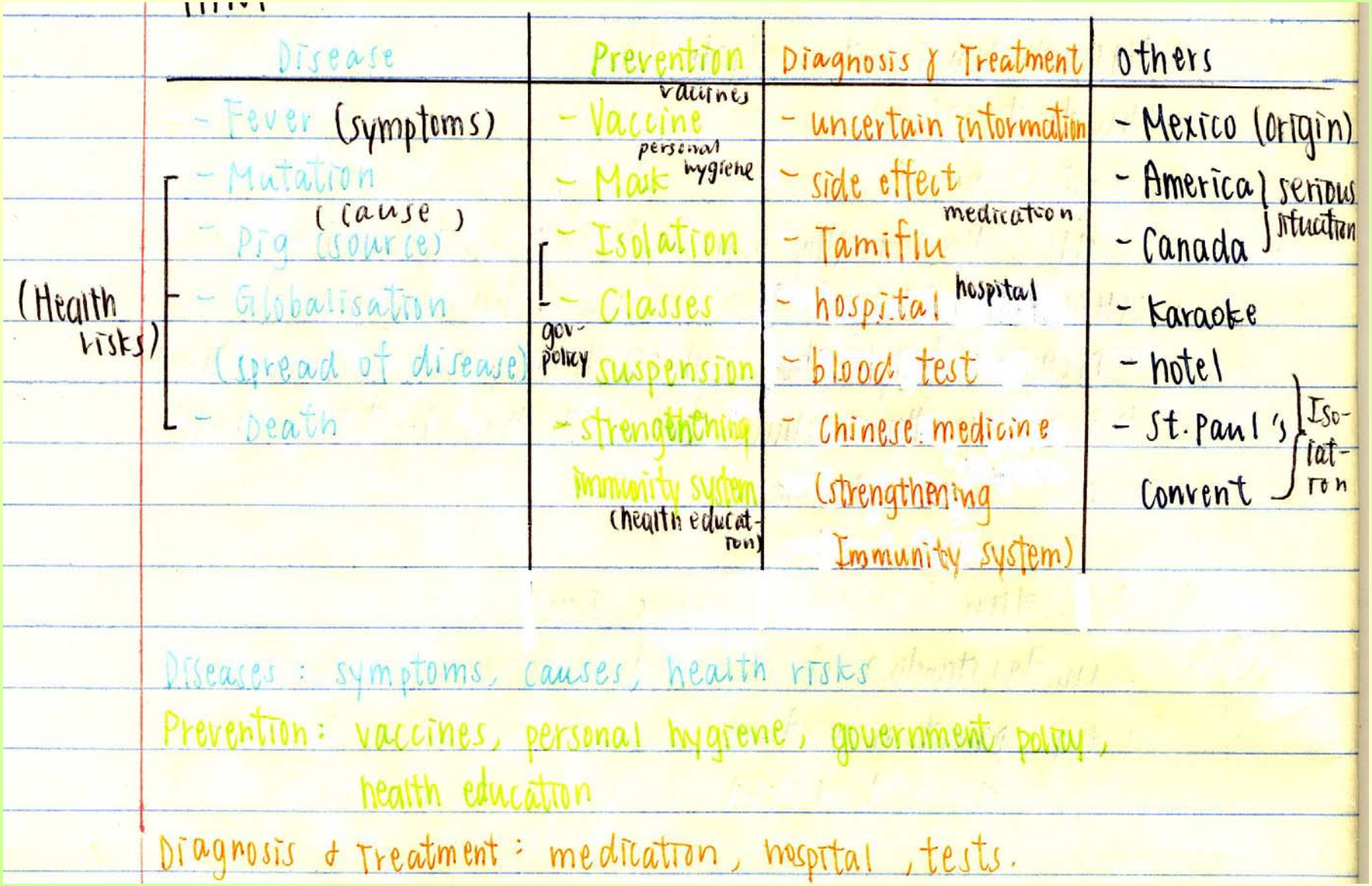
經歷SARS防範意識高?
港人消毒水口罩貼身帶

Disease	Prevention	Diagnosis & Treatment

H1N1

Others

Student's work



Disease	Prevention	Diagnosis & Treatment	others
- Fever (symptoms)	- Vaccine (vaccines)	- uncertain information	- Mexico (origin)
- Mutation (cause)	- Mask (personal hygiene)	- side effect	- America (serious situation)
- Pig (source)	- Isolation	- Tamiflu (medication)	- Canada (serious situation)
- Globalisation (spread of disease)	- Classes (gov-policy)	- hospital (hospital)	- Karaoke
- Death	- suspension (gov-policy)	- blood test	- hotel
	- strengthening Immunity system (health education)	- Chinese medicine (strengthening Immunity system)	- St. Paul's Convent (Isolation)

(Health risks)

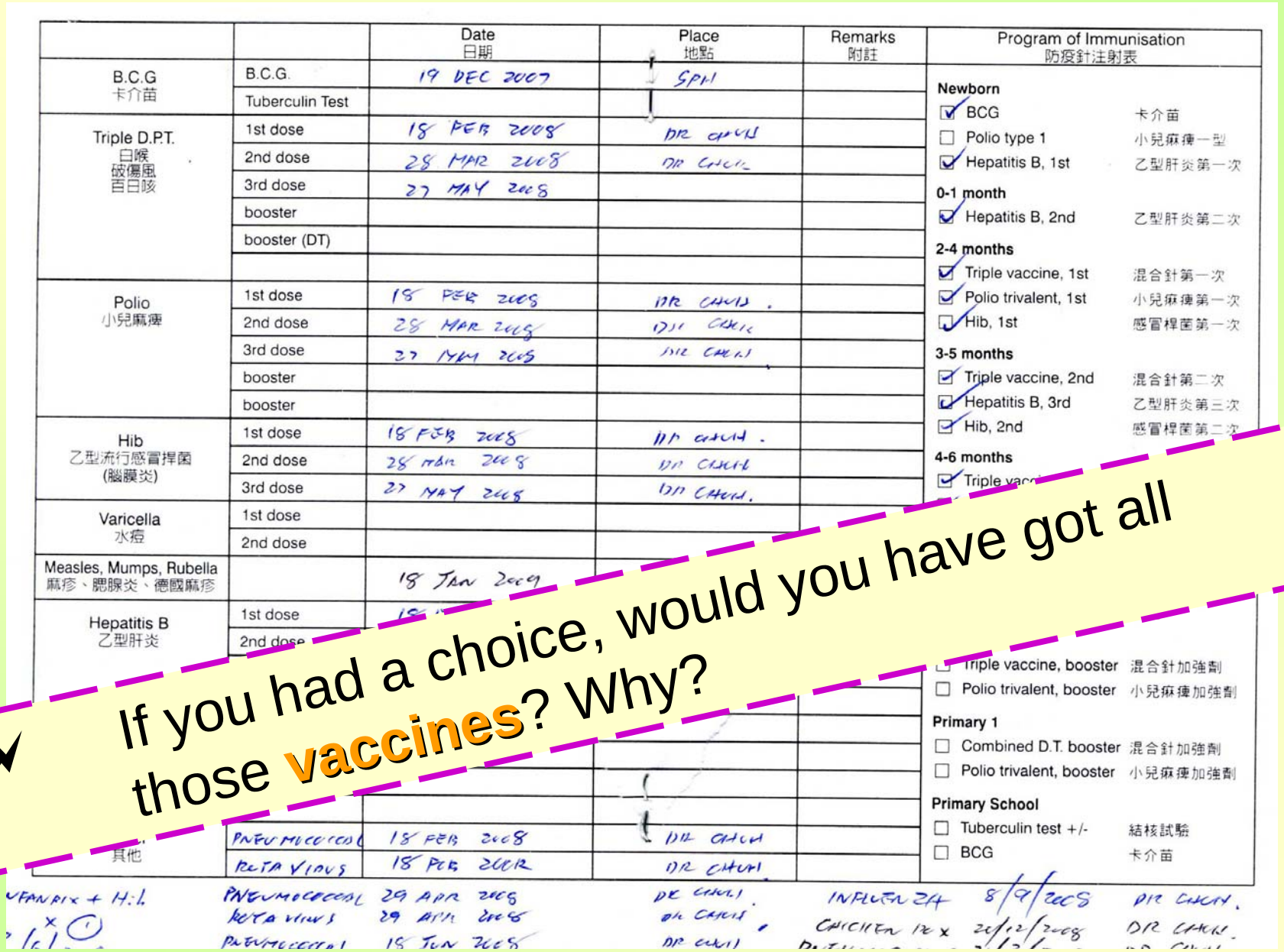
Diseases : symptoms, causes, health risks

Prevention: vaccines, personal hygiene, government policy, health education

Diagnosis & Treatment: medication, hospital, tests.

Questions for class discussion

- What is “*vaccine*”?
- How many **vaccines** have you been injected?



		Date 日期	Place 地點	Remarks 附註
B.C.G 卡介苗	B.C.G.	19 DEC 2007	SPH	
	Tuberculin Test			
Triple D.P.T. 白喉 破傷風 百日咳	1st dose	18 FEB 2008	DR CHUA	
	2nd dose	28 MAR 2008	DR CHUA	
	3rd dose	27 MAY 2008		
	booster			
	booster (DT)			
Polio 小兒麻痺	1st dose	18 FEB 2008	DR CHUA	
	2nd dose	28 MAR 2008	DR CHUA	
	3rd dose	27 MAY 2008	DR CHUA	
	booster			
	booster			
Hib 乙型流行感冒桿菌 (腦膜炎)	1st dose	18 FEB 2008	DR CHUA	
	2nd dose	28 MAR 2008	DR CHUA	
	3rd dose	27 MAY 2008	DR CHUA	
Varicella 水痘	1st dose			
	2nd dose			
Measles, Mumps, Rubella 麻疹、腮腺炎、德國麻疹		18 JAN 2009		
Hepatitis B 乙型肝炎	1st dose			
	2nd dose			
其他	PNEUMOCOCCAL	18 FEB 2008	DR CHUA	
	ROTA VIRUS	18 FEB 2008	DR CHUA	

Program of Immunisation 防疫針注射表

Newborn
- ☑ BCG 卡介苗
- ☐ Polio type 1 小兒麻痺一型
- ☑ Hepatitis B, 1st 乙型肝炎第一次

0-1 month
- ☑ Hepatitis B, 2nd 乙型肝炎第二次

2-4 months
- ☑ Triple vaccine, 1st 混合針第一次
- ☑ Polio trivalent, 1st 小兒麻痺第一次
- ☑ Hib, 1st 感冒桿菌第一次

3-5 months
- ☑ Triple vaccine, 2nd 混合針第二次
- ☑ Hepatitis B, 3rd 乙型肝炎第三次
- ☑ Hib, 2nd 感冒桿菌第二次

4-6 months
- ☑ Triple vacc...

- ☐ Triple vaccine, booster 混合針加強劑
- ☐ Polio trivalent, booster 小兒麻痺加強劑

Primary 1
- ☐ Combined D.T. booster 混合針加強劑
- ☐ Polio trivalent, booster 小兒麻痺加強劑

Primary School
- ☐ Tuberculin test +/- 結核試驗
- ☐ BCG 卡介苗

VFANRIX + H:I. PNEUMOCOCCAL 29 APR 2008 DR CHUA. INFLUENZA 8/9/2008 DR CHUA.
ROTA VIRUS 29 APR 2008 DR CHUA. CHICKEN P× 26/12/2008 DR CHUA.
PNEUMOCOCCAL 18 JUN 2008 DR CHUA

If you had a choice, would you have got all those **vaccines**? Why?

Video show

新聞透視 - 該打則打 **29/11/08**圖片

新聞透視 - 該打則打 **29/11/08**

With reference to the video and your knowledge, what are the *impacts of vaccination* on public health?

1. Positive impacts (functions)	
(a)	The effectiveness of vaccination depends on age. Elderly aged 50 or above is 30-50%, 70-90% for adult, children of 2 or above is 50-60%. Which of the following is a possible reason for the relatively lower effectiveness among elderly and children?
	☐ Their ability to produce antibodies is generally lower
	☐ Adults are usually in better health conditions
	☐ A smaller percentage of these two groups get vaccinated
(b)	Which is not an advantage of vaccination?
	☐ The effectiveness of all vaccinations is permanent.
	☐ According to the findings, one could greatly reduced the chance of others being infected or the death rate of elderly by 90% through receiving vaccination.
	☐ The chance of a young adult infected H1N1 is reduced to 68-75% after receiving vaccination.
	☐ Vaccinations help to defend us from different deadly illnesses even though we risk from side effects
(c)	What are vaccines?
	☐ Chemically weakened toxins
	☐ Purified antigens
	☐ Extracts of pathogens
(d)	Dr Chan mentioned that vaccination is to provide a mock incident to the immune system. With reference to Dr Jenner's cowpox case, arrange the following in correct sequence to show how vaccines work:
	☐ A subpopulation of white blood cells become memory cells which can rapidly produce antibodies in large quantity if the host is exposed to the same antigens in the future
	☐ Local inflammation induces immune responses to the vaccine and stimulates the production of antibodies against the vaccine antigens.
	☐ The vaccine attracts white blood cells to the injection site.
	☐ These cells participate in the local inflammatory responses such as redness, swelling and pain at the injection site.
(e)	Which of the following diseases does/do not have approved vaccines at the moment?
	☐ Cervical cancer
	☐ Rubella (German measles)
	☐ AIDS
	☐ H1N1

2. Negative (limitations)

(a) Which of the following are reasons that Mr and Mrs Leung refuse to get their sons vaccinated?

- ☐ Our immune system and acids in the stomach etc. help us to fight against different pathogens.
- ☐ It is very risky to take vaccine as it is injected to the blood directly.
- ☐ One might be infected even received vaccination.
- ☐ Their sons are healthy even though they receive no vaccines since birth.

(b) Why does Dr Wong, the homoeopath, object the use of vaccination to prevent diseases?

- ☐ Vaccines might affect the brain and nervous system.
- ☐ One might have to receive different types of vaccinations every month as there are vaccinations claimed to prevent different illnesses.
- ☐ One might always be in a state of anxiety due to fear of not getting sufficient vaccinations.

(c) Which of the following may be side effects of vaccination?

- ☐ Fever
- ☐ Autism
- ☐ Retarded growth
- ☐ Encephalitis

(d) Why are there still cases of infection for those who have received the vaccines?

- ☐ There are frequent mutations of virus for some diseases
- ☐ The effectiveness of some vaccines may not be long lasting; one needs to take the vaccination regularly.
- ☐ The effectiveness of vaccination is dramatically lowered if the number of people receiving vaccination decreased.

3. What should we consider prior to vaccination?

- ☐ Clinically proven effectiveness of vaccines
- ☐ The occurrence frequency of the diseases which the vaccines aim at
- ☐ The seriousness of the diseases if infected
- ☐ The age group which is likely to be affected by the diseases
- ☐ The price of the vaccines

Class debate

Debate Motion

“That the government should make vaccination mandatory in Hong Kong.”

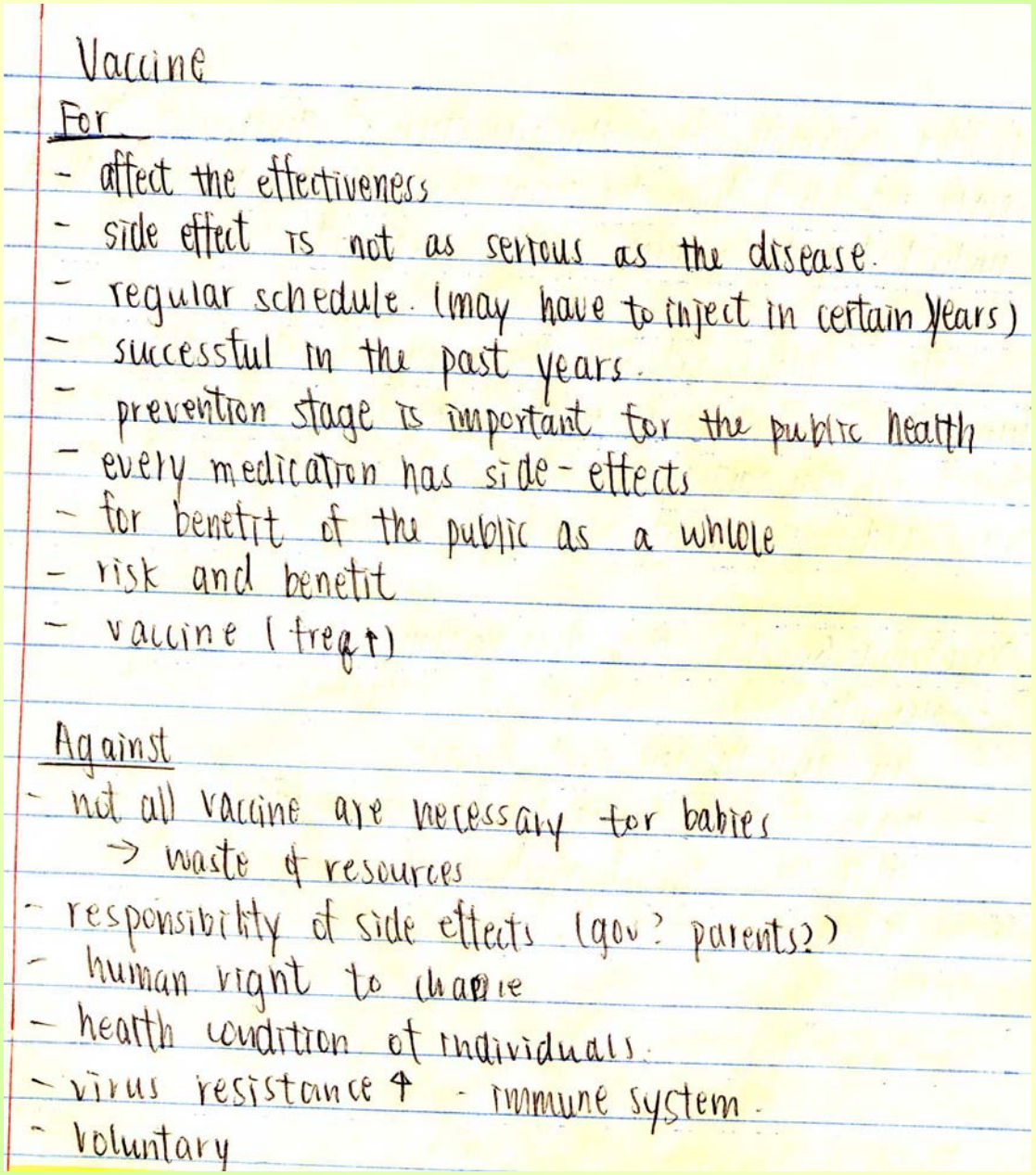
1. Arguments by the speakers / Questions from the floor

	Government side	Opposition side

2. Your comment on the arguments, oratorical skills and others

	Government side	Opposition side
Good		
To be improved		

Student's work



Vaccine

For

- affect the effectiveness
- side effect is not as serious as the disease.
- regular schedule. (may have to inject in certain years)
- successful in the past years.
- prevention stage is important for the public health
- every medication has side-effects
- for benefit of the public as a whole
- risk and benefit
- vaccine (freq↑)

Against

- not all vaccine are necessary for babies
  → waste of resources
- responsibility of side effects (gov? parents?)
- human right to choose
- health condition of individuals.
- virus resistance ↑ - immune system.
- voluntary

Factors	Government side	Opposition side
effectiveness of vaccine (scientific evidence)	Reduce rate of infection & seriousness of impact: e.g. H1N1	Not 100% protection e.g. TB; especially mutation of virus e.g. flu
Health risk related to vaccine (scientific evidence)	Outbreak of diseases in the community & become epidemic diseases e.g. smallpox before 1980	Personal choice especially related to side effect e.g. autism for combine vaccine
Alternatives to vaccine	Sometimes no: too powerful for immune system especially high risk group e.g. polio	Enhance own immune system e.g. Chinese medicine and healthy lifestyle
Psychological well-being	Greater fear if epidemic diseases break out e.g. measles in Switzerland	Worry about inadequate vaccines all the time e.g. flu, cervical cancer
Financial burden	Not necessary to have all vaccines; free/subsidized for high risk groups or those with financial difficulties	Many vaccine: expensive vaccine but not free
Political consideration	Some countries e.g. some states in the US have mandatory vaccination policy	Not recommended by WHO and not mandatory in most of the countries
Conclusion	Mandatory & subsidy when needed for individual & community health	Many ways to enhance immunity & adequate health literacy to evaluate risk and benefits

Assignment

Source A

一段文字資料

Source B

一段文字資料

(http://en.wikipedia.org/wiki/Progress_of_the_SARS_outbreak)

Source C

一段文字資料

Questions

1. **Referring to Sources A and B and your own knowledge,**

   (a) identify government policies to tackle human swine flu (4 marks); and

   (b) comment on whether the policies were appropriate (8 marks).

2. **Your grandparents asked you whether they should inject the H1N1 vaccine. What information would you like to collect before giving them advice? Explain. (8 marks)**

Students' work A

1 (a)

From sources, after a Mexican tourist was confirmed to have human swine flu, which is the first case of H1N1 discover in Hong kong. Also, because of the serious destrive experience from SARS in 2003, the HKSAR is complained by people that with slow response. So, with a new infletion H1N1, HKSAR has tens measures.

First, HKSR immediately increase the awareness of public toward the H1N1 after the first case of human swine flu is confirmed in HK. Donald Tsang has raised the Territory's pandemic alert level from serious to emergency. This measure can increase the public awareness toward infletion. By doing so, people from HK will consider more clearfully befor they need to travel overseas. From this measure, HKSAR has acted the role to provide the health information and current situations to public, so to increase the health literacy.

policy + measures

Besides, HKSAR has also carry out primary healthcare servile that is to prevent the large scale's outbreak of H1N1. After a Mexican tourist is proved to be the first case of human swince flu. The patient and even his companions are under isolation to prevent the spreading of disease. The most important is the tourist who has been staying in the Metropark Hotel including hotel workers and guests are under quarantine for 7 days. By doing so, HKSAR can lower the percentage of the possibility of H1N1 spreading.

From the tertiary healthcare servilies perspective, HKSAR also stocked 20 million courses of Tamiflu to anti-flu and cope with the H1N1 patients. Beside the government also set up isolation wards at public hospitals, quarantine centers to ready to provide medical treatment for H1N1 patients.

4

1 (b)

I think

(b) On the above government policies of tackling the human swine flu, there are some appropriated ✓ polices and some inappropriated ✓ polices.

For the appropriated polices, I think the government immediatelly raised the pandemic alert level from serious to emergency ✓. This can warned the citizens, the hospitals and the borders to be more cared on the human swine flu spreading ✓. Also, the government stocked a lot of anti-flu drug when the H1N1 spead in the countries ✓. This prevention is appropriate as Hong Kong is a city with a big trading relationship with many other countries. So, it is very easy for Hong Kong having the cases of H1N1 ✓. Also, the policy of giving free or subsidize vaccines to the high risk groups of H1N1 in Hong Kong is needed. As the high risk groups are much ~~more~~ easier to have the H1N1. This is also a good prevention of preventing the ~~the~~ spreading of H1N1 ✓.

But, on the other hand, there are also some policies that are inappropriate. I think the government closed the hotel that ~~are~~ found the case of H1N1 for quarantine in 7 days is not needed. As by ~~the~~ an infectious disease expert in Hong Kong, Lo Wing-lok said, flu viruses incubate for about 2 days before the person stated showing the symptoms, and at these 2 days time, the person may already spreaded the disease everywhere with no symptoms. So, it is quite useless for the quarantine ✓. Also, as this time the disease is a flu only, and is not as serious as ~~as~~ the SARS in 2003. And actually the government cannot control to prevent it as it spreads too quickly. And ~~it~~ if compare H1N1 with SARS, mortality rate of H1N1 is ~~than~~ a lot lower ~~than~~ than SARS. So, ~~it~~ if the government have the anti-flu drug, it ~~is~~ is already enough for tackling this disease. ✓

<cont.

2

Befor giving opinion to grandparents whether they should inject the H1N1 vaccine. I would like to collect the side effect of H1N1 vaccine, numbers of people inject, the injection cost and whether they're suitable for H1N1 vaccine inject. ✓

There're some important things befor injecting H1N1 vaccine. Since vaccine is not 100% safe for anyone. Those people who are allergied to eggs, milk, may not be suitable to have vaccine injection. because eggs are involved in the manufacturing process. So, before the injection, I need to make sure whether my grandparents have those allergy (allergication) or not. ✓

However, compare to the effects of having H1N1, the H1N1 vaccine is less rickdy. There're information showing that, in clinical trials, 10 000 to 15 000 children and adults have received various manufacturers' brands of H1N1 swine flu vaccine, but there nothing serious happened to any of them, only some headache. may happened. So, grandparents need to consider the pros and cons of having vaccine injection.

Besides the side effects, it also need to know the number of people having injection. The reason is that the efficiency of the vaccine need to depend on the number of injectors. The larger number of injectors, the higher the efficiency of the vaccine. So, before the vaccine, I need to check the numbers of injectors. ✓

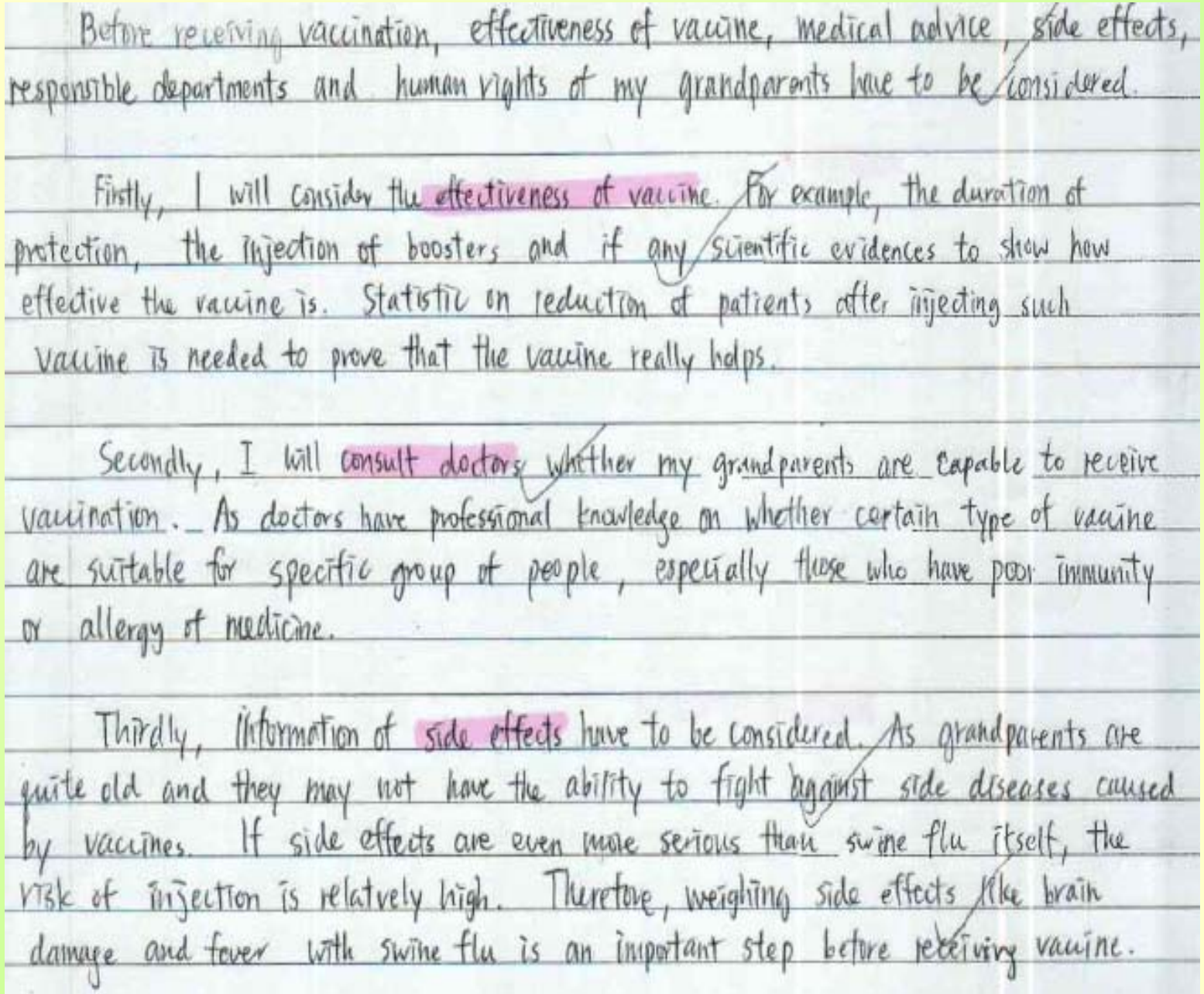
[not just = "others' opinion" ∵ inappropriate to follow "group infl"]

Third, I also need to know the price of H1N1 vaccines. Since my grandparents may not be afford to take the vaccine injection. As the Hong Kong Health Department has carried down the vaccine injection's subsidy to those high risk group. So, I'll advice them to go to hospitals to take the vaccine as they can subsidy from government, even free compared to private clinic may need to pay a much higher cost. ✓

Finally, I need to check whether my grandparents are suitable for the vaccine injection. As the children and old people are the high risk group and they're more easy to have H1N1, so this is better for them to have vaccine injection for prevention. ✓

Students' work B

2



Before receiving vaccination, effectiveness of vaccine, medical advice, side effects, responsible departments and human rights of my grandparents have to be considered.

Firstly, I will consider the effectiveness of vaccine. For example, the duration of protection, the injection of boosters and if any scientific evidences to show how effective the vaccine is. Statistic on reduction of patients after injecting such vaccine is needed to prove that the vaccine really helps.

Secondly, I will consult doctors whether my grandparents are capable to receive vaccination. As doctors have professional knowledge on whether certain type of vaccine are suitable for specific group of people, especially those who have poor immunity or allergy of medicine.

Thirdly, information of side effects have to be considered. As grandparents are quite old and they may not have the ability to fight against side diseases caused by vaccines. If side effects are even more serious than swine flu itself, the risk of injection is relatively high. Therefore, weighing side effects like brain damage and fever with swine flu is an important step before receiving vaccine.

Finding which government department is responsible for the vaccination programme is essential to protect citizen's interest. For example, knowing the origin of vaccines, how vaccines are supplied to different district in Hong Kong, and understanding how they would tackle with severe side effects due to injection would give confidence to the public and convince us to receive vaccine. If the Government is frank to show clearly how such policy is carried out transparently, it acts as bright guards for the public.

Finally, after telling the above findings to my grandparents, the final decision is made by them as they deserve the right to make decision. They are the ones who receive vaccine so they have their say base on risks and benefits.

Thank you !


SAINT PAUL'S
OMNIBUS I COR IN XP OMNIA
40TH ANNIVERSARY
1970 -2010
St. Paul's School (Lam Tin)
Thank you!
ST PAUL'S SCHOOL LAM TIN
Y.M. Cheung
C. Pun
S.M. Sin
M.T. Wong