



衛生防護中心
Centre for Health Protection

Scientific Committee on Vaccine Preventable Diseases

Recommendations on Seasonal Influenza Vaccination for the 2015/16 Season

Introduction

Seasonal influenza causes a significant disease burden in Hong Kong. Since 2004, the Scientific Committee on Vaccine Preventable Diseases (SCVPD) has been reviewing the scientific evidence of influenza vaccination and recommended the priority groups for influenza vaccinations annually. This document sets out the scientific evidence, local data, overseas practice, and provides our recommendations in relation to the application of influenza vaccination in Hong Kong for the 2015/16 season.

Global situation of the 2014/15 winter influenza season

2. Globally, countries in the Northern Hemisphere had entered the 2014/15 winter influenza season since November 2014, and the season lasted until April 2015 with durations varying from place to place. In North America, the influenza activity in the United States (US) began to increase since mid-November 2014 while in Canada, a continual increase in influenza activity was recorded since December 2014. The influenza season in Europe started in mid-December of 2014. The number of countries with increased activity continued to rise in January 2015, and the season lasted until early May. In Japan, the influenza season started in early December in 2014, which was earlier than usual.

3. Influenza A(H3N2) was the major circulating virus and an increase in influenza B virus circulation was detected towards the end of the season. Laboratory analyses in the US, Canada and Europe revealed that a significant proportion of the H3N2 viruses detected were antigenically different from the A/Texas/50/2012 (H3N2)-like virus recommended by the WHO for the 2014/15 Northern Hemisphere seasonal influenza vaccine. Among them, most were antigenically similar to A/Switzerland/9715293/2013, which is the A/H3N2 component selected for the 2015 Southern Hemisphere influenza vaccine.

4. Influenza A(H1N1)pdm09 viruses co-circulated in varying proportions with A(H3N2) and B viruses, with outbreaks in several countries. The majority of A(H1N1)pdm09 viruses were antigenically similar to A/California/7/2009. Vaccines containing A/California/7/2009 - like antigens elicited anti-HA antibodies in humans of similar titres against the vaccine virus and recent A(H1N1)pdm09 viruses.

5. Influenza B activity was reported in many countries. B/Yamagata/16/88 lineage viruses predominated over those of the B/Victoria/2/87 lineage. The majority of recent B/Victoria/2/87 lineage viruses were antigenically and genetically closely related to B/Brisbane/60/2008. Most recently isolated B/Yamagata/16/88 lineage viruses were antigenically closely related to the vaccine virus recommended for use in the 2015 southern hemisphere influenza season, B/Phuket/3073/2013.

Summary of the 2014/15 Winter Influenza Season in Hong Kong

6. The Centre for Health Protection (CHP) has set up sentinel surveillance networks, outbreak reporting and investigation mechanisms, as well as laboratory surveillance to monitor influenza activity in the community. Surveillance data of CHP revealed that the 2014/15 winter influenza season in Hong Kong arrived in the last week of December 2014, which was several weeks later than that in North America and Japan. The seasonal influenza activity had continued to increase rapidly in January 2015 and reached the peak in early February. Since then, it had started to decrease gradually and finally returned to a low level in the third week of April, indicating the end of this winter influenza season.

7. Among the positive influenza virus detections recorded by the Public Health Laboratory Services Branch (PHLSB) of CHP between December 28, 2014 and April 25, 2015, the predominating virus was influenza A(H3N2) (90.1%), followed by influenza B (8.4%), influenza A(H1N1)pdm09 (1.1%) and influenza C (0.4%). Genetic characterization revealed that over 95% of the influenza A (H3N2) viruses detected in this season were A/Switzerland/9715293/2013-like.

The Influenza Vaccine

8. Influenza vaccination is one of the effective means in preventing influenza and its complications together with reduction in influenza related hospitalisation and death. Commonly available seasonal influenza vaccines can be broadly classified into inactivated influenza vaccines (IIV) and live attenuated influenza vaccines (LAIV). Inactivated influenza vaccines in the form of trivalent vaccine (IIV3) consist of three seasonal influenza viruses, two different influenza type A strains and one influenza type B strain, and have

been used for over 60 years whereas LAIV though available in previous years is currently not registered in Hong Kong.

9. Vaccine effectiveness depends on the similarity between the virus strains present in the vaccine and those circulating in the community. For over a decade, two distinct lineages of influenza B (the Yamagata and Victoria lineages) have circulated worldwide, neither providing good cross-protection against the other. The use of quadrivalent influenza vaccines which contain two influenza B virus strains has been approved and in use in Hong Kong and some overseas countries. Studies on quadrivalent influenza vaccines showed that the addition of the second B strain did not result in immune interference to other strains included in the vaccine. Moreover, the rates of adverse events following quadrivalent and trivalent influenza vaccines were similar.

10. Most IIVs are given via the intramuscular route and are recommended for use in individuals 6 months of age or above (depending on individual brand). In addition, an intradermal IIV for adults aged 18 years or above has been licensed in Hong Kong since December 2009, but it will not be available in coming 2015/16 influenza season. Both IIV and LAIV have been demonstrated to be effective in children and adults. The seasonal influenza vaccine requires annual administration.

11. According to the WHO, when the vaccine strains closely match the circulating influenza viruses, efficacy of IIV in individuals younger than 65 years of age typically range from 70% to 90%, whereas the efficacy of IIV to prevent influenza infection in individuals aged 65 years or above is at best modest, irrespective of setting, population and study design. Nevertheless, vaccination remains the most efficacious public health tool currently available to protect elderly individuals against influenza.

Recommendations

12. Recommendations on the use of seasonal influenza vaccination in the local context have been developed by the SCVPD. The SCVPD recommends the following on seasonal influenza vaccination for the 2015/16 season.

Vaccine Composition

13. Recommended trivalent vaccines to be used in the 2015/16 season (northern hemisphere winter) comprise A/California/7/2009 (H1N1)pdm09-like virus, A/Switzerland/9715293/2013 (H3N2)-like virus and B/Phuket/3073/2013-like virus. If quadrivalent influenza vaccine is being used, it shall contain the above three viruses and a B/Brisbane/60/2008-like virus.

Vaccine Type

14. Both trivalent (IIV3) and quadrivalent (IIV4) inactivated influenza vaccines are recommended for use in Hong Kong. Depending on individual brand, IIVs are recommended for use among people six months of age or older, including healthy people and those with chronic medical problems. Regarding the types of inactivated seasonal influenza vaccine, both trivalent and quadrivalent vaccines are recommended. Based on local laboratory data, trivalent influenza vaccine may potentially prevent majority of influenza burden in Hong Kong, while quadrivalent influenza vaccine may potentially offer additional protection against influenza B.

Vaccine Precautions

15. Adverse events following IIV administration may include local reactions such as pain, swelling (15-20%), systemic side effects such as fever, malaise, and myalgia (1-10%), Guillain-Barré syndrome (1 to 2 per 1 million vaccinees), meningitis or encephalopathy (1 in 3 million doses distributed), and anaphylaxis (9 in 10 million doses distributed). IIV is contraindicated for those with history of hypersensitivity to components of the vaccine. Individuals with mild egg allergy who are considering an influenza vaccination can be given IIV in primary care. Individuals with diagnosed or suspected severe egg allergy should be seen by an allergist/immunologist for evaluation of egg allergy and for administration of IIV if clinically indicated.

16. A study has shown that there may be a small increased risk of febrile convulsions following concomitant administration of IIV and pneumococcal vaccine in young children, but the overall risk remains acceptable. Given the obvious benefit of on-time vaccination with the two vaccines, it is recommended that the current immunisation schedule remains unchanged.

17. Guillain-Barré syndrome (GBS) is a polyneuritis which may follow about 2 weeks after viral infection, surgery or rarely after immunisation. It is characterised by progressive weakness of all limbs and areflexia. Recent extensive review which evaluated the risk of GBS after administration of influenza vaccines (excluding the 1976-1977 swine influenza vaccine) concluded that the evidence is inadequate to accept or reject a causal relationship between influenza vaccine and GBS. Locally, in the season of 2014/15, there were no reports of suspected GBS case after seasonal influenza vaccination. The observed number of GBS cases that occurred in vaccinated persons lies within normal expectation of baseline incidence.

Dosing Schedule

18. A single intramuscular or intradermal dose is the standard regimen for IIV in persons 9 years or above. Children below 9 years, who have received one or more doses of seasonal influenza vaccine in or before 2014/15 season are recommended to receive one dose in the 2015/16 season. For vaccine-naïve children aged below 9 years, two doses with an interval of at least 4 weeks are required. Half the adult dose is recommended for children below 3 years.

19. Persons who have already been vaccinated with the 2015 Southern hemisphere seasonal influenza vaccine are recommended to receive the 2015/16 seasonal influenza vaccine, preferably with an interval of at least 4 weeks.

Priority Groups

20. Given influenza vaccines offer approximately 70-90% protection against clinical influenza and severe cases do occur in previously healthy persons, members of the public except those with known contraindications should receive seasonal influenza vaccine for personal protection.

21. People who are in the priority groups are generally at increased risk of severe influenza or transmitting influenza to those at high risk. Therefore, they shall have higher priority for seasonal influenza vaccination. These priority groups have been determined based on a range of scientific considerations taking into account local disease burden and international experience.

22. The priority groups recommended in the 2014/15 season will continue to be included as priority groups for influenza vaccination in the 2015/16 season. Recommendations on the priority groups for seasonal influenza vaccination are summarised below:

- (a) Pregnant Women: Seasonal influenza vaccination is recommended for all pregnant women for benefits in terms of reduced acute respiratory infection for both mothers and infants, and reduction of cardiopulmonary complications and the associated hospitalisations in pregnant women. The vaccine is considered safe by the WHO for use at any gestational age of pregnancy and there is no evidence indicating that inactivated influenza vaccine is teratogenic even when given during the first trimester. Pregnant women are recommended to have the highest priority for vaccination.

- (b) Elderly Persons Living in Residential Care Homes: Seasonal influenza vaccination is recommended for elderly persons living in residential care homes for reducing the risk of complications from influenza including hospitalisation and pneumonia in influenza outbreaks.
- (c) Long-stay Residents of Institutions for Persons with Disabilities: Seasonal influenza vaccination is recommended for long-stay residents of institutions for the mentally and physically disabled for reducing influenza related hospitalisation during influenza outbreaks. The disability of the residents hinders them from undertaking adequate hygiene measures in an institutional environment which favours the transmission of influenza.
- (d) Persons Aged 50 Years or Above: Seasonal influenza vaccination is recommended for elderly persons aged 65 years or above because of their high risk of complications and excess hospital admissions and death from influenza. Persons aged 50-64 years are also recommended for influenza vaccination for the 2015/16 influenza season because of (i) local influenza epidemiology in the 2010/11 season (when influenza A (H1N1)pdm2009 strain predominated in Hong Kong) showing that people aged 50–64 years, irrespective of chronic medical problems, were having a higher risk of influenza-related intensive care unit admission and death, and (ii) the likelihood that influenza A (H1N1)pdm2009 strain will continue to circulate in 2015/16 season.
- (e) Persons with Chronic Medical Problems: Seasonal influenza vaccination is recommended for persons aged 6 months or above having chronic cardiovascular (except hypertension without complication), lung, metabolic or kidney disease, obesity# (BMI 30 or above), who are immunocompromised^, children and adolescents (aged 6 months to 18 years) on long-term aspirin therapy, and those with chronic neurological condition that can compromise respiratory function or the handling of respiratory secretions or that can increase the risk for aspiration or those who lack the ability to take care for themselves. Seasonal influenza vaccination is recommended for their increased risk of complications and death associated with influenza infection.

Obesity is considered as an independent risk factor for influenza complication and thus people with BMI 30 or above are included for seasonal influenza vaccination.

^ People who are immunocompromised refer to those with a weakened immune system due to disease (such as HIV/AIDS) or treatment (such as cancer treatment).

- (f) Health Care Workers: Seasonal influenza vaccination is recommended for health care workers to reduce morbidity and hence reduce absenteeism among health care workers related to respiratory infections. It is also recommended in order to reduce the risk of transmitting influenza to patients who are at high risk of complications and mortality from influenza.
- (g) Children Aged 6 Months to 5 Years: Seasonal influenza vaccination is recommended for children 6 months to 5 years for reducing influenza related complications such as excess hospitalisations or deaths.
- (h) Poultry Workers: Seasonal influenza vaccination is recommended for poultry workers and persons involved in slaughtering of animals potentially infected with highly pathogenic avian influenza virus for minimising the risk of re-assortment and eventual emergence of a novel influenza virus with pandemic potential through preventing concomitant infections by the human influenza and avian influenza viruses in humans.
- (i) Pig Farmers and Pig-slaughtering Industry Personnel: Pig farmers and pig-slaughtering industry personnel are recommended to receive seasonal influenza vaccine to prevent emergence of new influenza A virus in either human or pig hosts.

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