



**衛生防護中心**  
Centre for Health Protection

## **Scientific Committee on Vaccine Preventable Diseases**

### **Recommendations on Seasonal Influenza Vaccination for the 2017/18 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 2017/18 season.

#### **Global Situation of the 2016/17 Winter Influenza Season**

2. In the northern hemisphere, influenza activity began in Asia and Europe in October-November, 2016 and had increased in most countries by December. The 2016/17 winter influenza season in most major countries started in December, 2016. In many countries with tropical and subtropical climates, influenza circulated during the entire reporting period.

3. Influenza A(H3N2) virus predominated in this season. According to the World Health Organization (WHO), the majority of influenza viruses characterised were antigenically similar to the reference viruses contained in vaccines for use in the 2016/17 northern hemisphere influenza season. Nearly all tested viruses collected for antiviral sensitivity test were found to be susceptible to the neuraminidase inhibitor antiviral medications.

#### **Summary of the 2016/17 Winter Influenza Season in Hong Kong**

4. Hong Kong entered the 2016/17 winter influenza season in mid-February, 2017. This year, the winter influenza season arrived later than the usual time between late December and January. The influenza activity had increased for a few weeks and then started to decrease since March, 2017. It returned to the baseline level in early April, indicating the end of the winter

season which lasted about seven weeks. In comparison with the winter influenza season in the previous two years, this influenza season was a mild season with a modest increase in influenza activity. Also, it was shorter than the past two winter seasons (17 and 16 weeks in the 2014/15 and 2015/16 season respectively).

5. Among respiratory specimens received by the Public Health Laboratory Services Branch (PHLSB) of the Centre for Health Protection (CHP), the weekly percentage tested positive for seasonal influenza viruses ranged from 8.17% to 8.83% in the five weeks between 8 January and 11 February, 2017. Afterwards it gradually increased to the peak of 9.38% in the week ending 4 March, and then decreased to 5.64% and 5.75% in the week ending 1 April and 8 April respectively. Influenza A(H3N2) was the most common subtype detected in this season. From 19 February to 8 April, 2017, influenza A(H3N2) constituted about 80% of influenza detections. Of note, there has been slight increase in influenza B detections in the later phase of the season.

6. In public hospitals under the Hospital Authority (HA), the admission rates with principal diagnosis of influenza had increased in February till early March and then started to decrease. The peak rate was highest among children aged under five years (1.30 admitted cases per 10,000 population), followed by elderly aged 65 years or above (0.69) and children aged 6-11 years (0.58). In this winter season, the increases among all age groups were modest as compared with the corresponding rates in the past two winter seasons.

7. In total, 71 severe cases (including 42 deaths) with laboratory confirmation of influenza were recorded among all ages in the current season. The severe cases and deaths mainly affected elderly aged 65 years or above, which was similar to previous seasons predominated by influenza A (H3N2). The number of severe cases reported in this season was lower than those reported during winter seasons in the past two years. The number of severe cases reported in the 2014/15 and 2015/16 season was 665 (502 deaths) and 436 (214 deaths) respectively.

## **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. The seasonal influenza vaccine requires annual administration. Most IIVs are given via the intramuscular route and are recommended for use in individuals six months of age or above except those with known contraindications (depending on individual brand). In addition, intradermal IIV and LAIV will not be available in Hong Kong in the coming 2017/18 influenza season.

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 2017/18 season.

### Vaccine Composition

13. Recommended trivalent vaccines to be used in the 2017/18 season (northern hemisphere winter) comprise A/Michigan/45/2015 (H1N1)pdm09-like virus, A/Hong Kong/4801/2014 (H3N2)-like virus and B/Brisbane/60/2008-like virus. If quadrivalent influenza vaccine is being used, it shall contain the above three viruses and a B/Phuket/3073/2013-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 aged 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.

### Dosage and Dosing Schedule

15. A single intramuscular dose is the standard regimen for IIV in persons aged nine years or above. Children below nine years, who have received one or more doses of seasonal influenza vaccine in or before 2016/17 season are recommended to receive one dose in the 2017/18 season. For vaccine-naïve children aged below nine years, two doses with an interval of at least four weeks are required. Half the adult dose is recommended for children below three years.

### Vaccine Precautions

16. Adverse events following IIV administration may include local reactions including pain, redness and swelling at the site of injection (15%-20%). Nonspecific systemic symptoms including fever, chills, malaise and myalgia are reported in fewer than 1% of IIV recipients. Other rare adverse events may include GBS (one to two per one million vaccinees) and anaphylaxis (nine per ten million doses distributed). IIV is contraindicated for those with a history of severe hypersensitivity to any of the vaccine components or a previous dose of influenza vaccination. Individuals with mild egg allergy who are considering an influenza vaccination can be given IIV in primary care. Individuals with a history of anaphylaxis to egg should be seen by an allergist/immunologist for evaluation of egg allergy and for administration of IIV if clinically indicated.

17. 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 in the United States, but the increased risk was not observed during subsequent influenza season and 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.

18. GBS is an acute paralyzing illness, usually provoked by a preceding 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.

19. Scientific studies over the years have shown an increased risk of GBS following influenza infection, and the magnitude of risk is much greater than that following influenza vaccination. Overseas studies have estimated that the risk of GBS following influenza vaccination was about one to two GBS case per million vaccine recipients. This is much lower than the influenza mortality rates of 79.89, 33.38 and 6.49 deaths per million population in Hong Kong in the 2014/15, 2015/16 and 2016/17 winter season among people aged 18 years or above respectively.

### Priority Groups

20. Given influenza vaccines offer approximately 70-90% protection against clinical influenza and severe cases do occur in previously healthy persons, all members of the public except those with known contraindications should receive seasonal influenza vaccine annually 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 2016/17 season will continue to be included as priority groups for influenza vaccination in the 2017/18 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 Disability: 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 because local influenza epidemiology showed 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 during seasons predominated by influenza A (H1N1)pdm09 strain.
- (e) Persons with Chronic Medical Problems: Seasonal influenza vaccination is recommended for persons aged six months or above having chronic cardiovascular (except hypertension without complication), lung, metabolic or kidney disease, obesity (BMI 30 or above)<sup>\*</sup>, who are immunocompromised<sup>†</sup>, children and adolescents (aged six 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.
- (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 Six Months to 11 Years: Seasonal influenza vaccination is recommended for children six months to 11 years for reducing influenza related complications such as excess hospitalisations or deaths. Studies in overseas have shown that vaccinating young school children may

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\* 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).



potentially reduce school absenteeism and influenza transmission in the community.

- (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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