衞生防護中心
Centre for Health Protection

Scientific Committee on Vaccine Preventable Diseases

Recommendations on Seasonal Influenza Vaccination for the 2016/17 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 2016/17 season.

Global Situation of the 2015/16 Winter Influenza Season

2. Globally, countries in the Northern Hemisphere had entered the 2015/16 winter influenza season since early January 2016, and the season lasted until early May. Compared to previous years, Northern Hemisphere seasonal influenza activity commenced late in some countries in western Europe, North America and eastern Asia. The season also peaked later than usual.

3. Among the circulating seasonal influenza viruses in the temperate zone, influenza A(H1N1)pdm09 virus was predominating in the early phase of the season, with influenza B catching up in the later phase. In general, both influenza A(H1N1)pdm09 and influenza B co-circulated in the Northern Hemisphere. However, in northern China and a few European countries, influenza A(H3N2) and influenza B viruses co-circulated.

4. The vast majority of the viruses genetically and/or phenotypically characterised remained sensitive to the neuraminidase inhibitors oseltamivir and zanamivir. Also, most of the viruses genetically characterised were similar to those recommended for inclusion in the trivalent or quadrivalent vaccines for the 2015/16 influenza season in the Northern Hemisphere. The World Health Organization (WHO) Collaborating Centres for Influenza of the WHO Global Influenza Surveillance and Response System had characterised influenza

A(H1N1)pdm09 viruses collected from more than 30 countries from September 2015 to January 2016, including those from countries reporting severe infections. Phylogenetic analysis of the haemagglutinin (HA) demonstrated that the HA genes of all viruses collected since September 2015 belong to genetic subgroup 6B. Within 6B, sub-subgroups with shared amino acid changes have emerged. Despite the genetic evolution of A(H1N1)pdm09 viruses, the majority of 6B viruses including those in the emerging sub-subgroups, remained antigenically closely related to the vaccine virus.

Summary of the 2015/16 Winter Influenza Season in Hong Kong

5. In 2016, the winter influenza season started in late January and ended in mid-May, spanning for about 16 weeks. The influenza activity peaked around late February to early March. This winter season arrived and ended later than the usual time in previous seasons, which was also observed in other Northern Hemisphere countries. The duration was similar to that of the last winter season in early 2015.

6. Among the respiratory tract specimens received by the Public Health Laboratory Services Branch of the Centre for Health Protection, the weekly percentage tested positive for seasonal influenza viruses significantly increased in February and reached the peak level of 26.5% in the last week of February. It then gradually decreased to 9.5% in the week ending May 14. The peak level was lower than the usual range of 30-40% recorded in past winter seasons.

7. Both influenza A(H1N1)pdm09 and influenza B viruses co-circulated in this season. Influenza A(H1N1)pdm09 virus predominated in the initial phase. However, the proportion of influenza B among positive influenza detections had been increasing steadily since February and had overtaken influenza A(H1N1)pdm09 to become the most commonly detected subtype since the week ending March 12.

8. In contrast to the last winter season predominated by influenza A (H3N2) where elders were mostly affected, children were particularly affected in this season as reflected by their high hospital admission rates and large number of influenza-like illness (ILI) outbreaks in kindergartens/ child care centres and primary schools. The peak influenza-associated admission rates recorded among children aged below 6 years and 6-11 years in this season exceeded those recorded in the same age groups in previous influenza seasons from 2010 to 2015, and that among children aged below 6 years even reached a level comparable to that recorded during the human swine influenza pandemic in 2009 when the influenza A(H1N1)pdm09 virus emerged. Moreover, the number of severe paediatric influenza cases recorded in this season was also the highest since influenza A(H1N1)pdm09 became a seasonal influenza virus after the pandemic.

9. Adults aged 18-64 years were also relatively more affected when compared with the last season as reflected by greater number of severe cases. On the other hand, elderly aged 65 years or above were relatively less affected this time than the last season, as reflected by the relatively lower hospitalisation rates, less outbreaks in residential care homes for the elderly and fewer numbers of severe and fatal cases among adults them.

The Influenza Vaccine

10. 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.

11. 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.

12. The seasonal influenza vaccine requires annual administration. Most IIVs are given via the intramuscular route and are recommended for use in individuals 6 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 2016/17 influenza season.

13. 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

14. 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 2016/17 season.

Vaccine Composition

15. Recommended trivalent vaccines to be used in the 2016/17 season (northern hemisphere winter) comprise A/California/7/2009 (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

16. 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

17. 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 (GBS) (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.

18. 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.

19. 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 2015/16, there was one report 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.

20. 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 GBS case per million vaccine recipients. This is much lower than the influenza mortality rates of 2.9, 9.7 and 144.1 deaths per million population in Hong Kong in the 2015/16 winter season among people aged below 18 years, 18-64 years and 65 years or above respectively.

Dosing Schedule

21. A single intramuscular 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 2015/16 season are recommended to receive one dose in the 2016/17 season. For vaccine-naive 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.

Priority Groups

22. 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 for personal protection.

23. 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.

24. The priority groups recommended in the 2015/16 season will continue to be included as priority groups for influenza vaccination in the

2016/17 season, while children aged 6 to 11 years are also included in the list of priority groups. 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 for the 2016/17 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 2016/17 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

[*] 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.

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.

(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 11 Years: Seasonal influenza vaccination is recommended for children 6 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 potentially reduce school absenteeism and influenza transmission in the community. Taking into consideration of local epidemiological data including ILI outbreaks, ILI attendance rates in Accident and Emergency Departments and influenza-associated admission rates in public hospitals, as well as latest scientific evidence and overseas practices, recommendation on influenza vaccination is expanded from children aged 6 months-5 years to 6 months-11 years.

(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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[†] 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).