衞生防護中心
Centre for Health Protection

Scientific Committee on Vaccine Preventable Diseases

Recommendations on Seasonal Influenza Vaccination for the 2021-22 Season in Hong Kong (April 2021)

Introduction

Seasonal influenza causes a significant disease burden in Hong Kong. Since 2004, the Scientific Committee on Vaccine Preventable Diseases (SCVPD) reviews the scientific evidence of influenza vaccination and makes recommendations on influenza vaccination in Hong Kong annually. This document sets out the scientific evidence, local data as well as overseas practices, and provides recommendations in relation to seasonal influenza vaccination in Hong Kong for the 2021-22 season.

Summary of Global influenza activity

2. The global influenza surveillance data was significantly influenced by the COVID-19 pandemic. According to WHO Influenza update published in March 2021, in the temperate zone of the northern hemisphere, influenza activity remained below baseline, while in the temperate zone of the southern hemisphere, influenza activity was reported at inter-seasonal level. Overall, record-low levels of influenza detections were reported and fewer viruses were available for characterization during the September 2020 to January 2021 time period than in previous years. Throughout the season, Influenza B viruses were detected more than influenza A viruses, and influenza B viruses have predominated since November 2020.

Summary of influenza activity in 2021 in Hong Kong

3. The seasonal influenza activity in Hong Kong remained at a low level after the end of 2019/20 winter influenza season in mid-February 2020. As of March 2021, the surveillance data of the Centre for Health Protection (CHP) showed that all influenza parameters have reached and remained at a low level, without signs of an increase in influenza activity nor the arrival of influenza season locally.

4. In January to March 2021, which was the usual period of winter influenza season in previous years, the laboratory surveillance data of CHP showed that the weekly percentage for influenza among respiratory specimens received by the Hospital Authority and the Public Health Laboratory Services Branch (PHLSB) remained at a low level of 0% to 0.09%. Half of the positive influenza detections (23) were influenza B (13), followed by influenza A (H3) (7) and influenza A(H1) (3).

Influenza Vaccines

Vaccine Types

5. Influenza vaccination is one of the effective means in preventing influenza and its complications together with reduction in influenza-associated hospitalisation and death. In Hong Kong, registered seasonal influenza vaccines (SIV) include inactivated influenza vaccines (IIV), and a live attenuated influenza vaccine (LAIV)*, as well as a recombinant influenza vaccine (RIV) recently registered in Hong Kong (in April 2021) † which is a quadrivalent influenza vaccine.

6. Two distinct lineages of influenza B (namely the Yamagata and Victoria lineages) circulate worldwide. Trivalent SIV consist of three seasonal influenza viruses: one influenza A (H1N1)pdm09 virus, one influenza A (H3N2) virus and one influenza B virus (either a Yamagata or Victoria lineage), while quadrivalent SIV consist of an additional influenza B virus of the lineage not contained in the trivalent SIV. It is expected that quadrivalent SIV could

* In the upcoming 2021-22 season, adjuvanted IIV and high-dose IIV are not available.

† Recombinant influenza vaccine is a vaccine that is created synthetically by recombinant technology and it does not require egg during the production process.

provide additional protection against influenza B, especially in seasons predominated by influenza B viruses.[‡]

7. SIV require 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 brands). LAIV (FluMist Quadrivalent) is recommended for use in individuals aged two to 49 years, and should be given intranasally. RIV is recommended for use in individuals of 18 years or above.

Vaccine Effectiveness

8. Vaccine effectiveness (VE) measures the protection when it is used in the general population under real-world conditions and depends on factors including the similarity between the virus strains present in the vaccine and those circulating in the community as well as the characteristics of recipients (e.g. age).[§]

9. According to the World Health Organization (WHO), when the vaccine strains closely match the circulating influenza viruses, efficacy of IIV in individuals younger than 65 years of age typically ranges from 70% to 90%, whereas the protection that IIV offers in prevention of influenza infection in individuals aged 65 years or above is at best modest, irrespective of setting, population and study design. For LAIV, overseas studies and clinical experience had generally indicated LAIV to be a safe vaccine, providing comparable protection against influenza to that afforded by IIV.

Adverse Events

10. The most common adverse events following IIV or RIV administration are local reactions including pain, redness and swelling at the site of injection and may occur at more than 10% of IIV or RIV recipients. Non-specific systemic symptoms including fever, chills, malaise and myalgia are uncommon and reported in less than or about 1%. Other rare adverse events may

[‡] The 2017/18 winter season in Hong Kong was predominated by influenza B which constituted about 75% of the positive influenza detections. Among the influenza B detections, about 95% belonged to the Yamagata lineage which was only included in the quadrivalent SIV in that season.

[§] US Centers for Disease Control and Prevention. How Flu Vaccine Effectiveness and Efficacy are Measured. Available at https://www.cdc.gov/flu/vaccines-work/effectivenessqa.htm.

include anaphylaxis (nine per ten million doses distributed) and Guillain-Barré syndrome (GBS).

11. 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. Overseas studies have estimated that the risk of GBS following influenza vaccination to be about one to two GBS cases per million vaccine recipients. This is much lower than the influenza mortality rates of 15.9-67.4 deaths per million population in Hong Kong among people aged ≥18 years during major influenza seasons between 2015/16 and 2019/20. Locally, one case of GBS (in 2020/21) was recorded among persons who had received SIV (within the period of five days and six weeks after seasonal influenza vaccination) within the past five seasons.[**] In Hong Kong, the number of GBS (all causes) admitted to public hospitals ranged from 47 to 88 cases per year between 2016 and 2020.[††]

12. For LAIV, the most common adverse reactions following LAIV administration are nasal congestion or runny nose in all ages, fever in children and sore throat in adults. The safety in pregnant women has not been established. Children aged below five years with recurrent wheezing and persons of any age with asthma may be at increased risk of wheezing following administration. As this is a live vaccine, there is potential for transmission of the vaccine viruses to immunocompromised individuals.

Influenza vaccination and the COVID-19 pandemic

13. There is increasing evidence [‡‡] suggesting that co-infection of COVID-19 and influenza increases morbidity and mortality, and influenza vaccination might reduce the likelihood of hospitalisation and length of stay. As the risk groups of COVID-19 and influenza are similar, it is important to ensure that people who are at greater risk of influenza infection (e.g. health workers, older adults and pregnant women) are prioritised to receive SIV. Similar to influenza, COVID-19 severity is strongly associated with advanced

---

[**] Causality assessment based on the WHO's classification (https://www.who.int/vaccine_safety/publications/gvs_aefi/en/) : B1 (Indeterminate; temporal relationship is consistent but there is insufficient definitive evidence for vaccine causing event)

[††] Details are available from https://www.chp.gov.hk/en/features/26736.html

[‡‡] J Stowe. 22 September 2020, Available at https://www.medrxiv.org/content/10.1101/2020.09.18.20189647v2

age, and older adults are at much greater risk of severe disease and death than younger adults.

14. Influenza transmission may have been altered by the range of non-pharmaceutical interventions (NPIs) in place for COVID-19 or the limited influenza importation into countries due to travel restrictions or border closures. Influenza transmission could increase when the NPIs and travel restrictions are lifted, leading to potential co-circulation of influenza and SARS-CoV-2, with additional burden on vulnerable populations and health systems. To ensure optimal control of influenza during COVID-19, the WHO has considered the prioritization of risk groups for influenza vaccination during COVID-19 pandemic[§§]; and recommended health workers and older adults as the highest priority groups for receipt of influenza vaccines during the COVID-19 pandemic.

15. Health workers are recommended as one of the highest priority groups for receipt of SIV to minimize: absenteeism due to influenza and disruption to the workforce; spread of influenza from care providers to vulnerable patients; and burden on the broader health system.

16. Similar to influenza, COVID-19 severity is strongly associated with advanced age. Older adults are at much greater risk of severe disease and death than younger adults. They are recommended as one of the highest priority groups to receive SIV

Recommendations

17. The SCVPD made the following recommendations on seasonal influenza vaccination for the 2021/22 season in Hong Kong.

Vaccine Composition

18. The composition follows the recommendations by the WHO for the 2021-22 Northern Hemisphere influenza season. The composition recommended for egg-based versus cell- or recombinant-based vaccines were

[§§] World Health Organization. (2020). Guiding principles for immunization activities during the COVID-19 pandemic: interim guidance, 26 March 2020. World Health Organization. Available at https://apps.who.int/iris/handle/10665/331590

different for influenza A (H1N1)pdm09 and A(H3N2) viruses, as the WHO considered the same virus may not be optimal for both production systems in some instances. The egg-based quadrivalent SIV recommended by the WHO for 2021/22 season (Northern Hemisphere winter) comprise an A/Victoria/2570/2019 (H1N1)pdm09-like virus, an A/Cambodia/e0826360/2020 (H3N2)-like virus, a B/Washington/02/2019-like virus (B/Victoria lineage), and a B/Phuket/3073/2013-like virus (B/Yamagata lineage). The recommended cell- or recombinant-based quadrivalent SIV by WHO comprise an A/Wisconsin/588/2019 (H1N1)pdm09-like virus, an A/Cambodia/e0826360/2020 (H3N2)-like virus, a B/Washington/02/2019-like virus (B/Victoria lineage), and a B/Phuket/3073/2013-like virus (B/Yamagata lineage).

Vaccine Type

19. IIV, RIV and LAIV are recommended for use in Hong Kong. For IIV, quadrivalent IIV is preferred to trivalent IIV in view of the additional protection against one more lineage of influenza B offered by quadrivalent IIV. 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. RIV is recommended for use in individuals of 18 years or above. The LAIV can be used for people aged 2-49 years, except those who are pregnant, immunocompromised or with other contraindications (refer to paragraph 27 below). When deciding the type of SIV to use, healthcare providers should always refer to the package insert of individual products for indications, precautions and contraindications.

Dosing Schedule

20. Given that SIV offers 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 SIV annually for personal protection, which is in line with the recommendation by the WHO. Members of the public should receive SIV once in the 2021-22 season, which is expected to offer protection for both winter and summer seasons.

21. Healthcare providers should follow the age-appropriate dosage of individual vaccines according to the respective package insert. A single dose of SIV is the standard regimen for persons aged nine years or above. For

children below nine years of age who have received one or more doses of SIV before, they are recommended to receive one dose of SIV in the 2021-22 season. For children below nine years of age who have not received any SIV before, two doses of SIV with an interval of at least four weeks are required.[***]

Injection interval between influenza vaccines and other vaccines

22. For individuals receiving LAIV, other live vaccines not administered on the same day should be administered at least four weeks apart.

23. For individuals receiving IIV and RIV, other inactivated or live vaccines may be administered simultaneously or at any interval between doses.

24. While a study in young children in the US has shown that there may be a small increased risk of febrile convulsion following concomitant administration of IIV and pneumococcal vaccine, 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 IIV and pneumococcal vaccine can be given concomitantly.

25. There is currently limited information on the safety and effectiveness of using COVID-19 vaccine with influenza vaccine at the same time. Concerning Pfizer-BioNTech COVID-19 vaccine (BNT162b2), the current recommendation from the Center for Disease Control and Prevention (CDC)[†††] and the WHO[‡‡‡] suggest a minimum interval of 14 days between administration of BNT162b2 and other vaccines. For CoronaVac COVID-19 Vaccine (Vero Cell) Inactivated, the latest guideline on COVID-19 vaccination from the National Health Commission of the People's Republic of China recommended an interval of at least 14 days between the administration of

[***] For the 2020-21 influenza season, most health authorities including the UK, Ireland, Canada, Australia and New Zealand recommended only 1 dose for children aged 6 months to 8 years who had received any SIV in the past. The UK recommended that only a single dose of LAIV was required for children aged 2-17 years who were not in clinical risk groups, even for those who have not received any SIV in the past. However, the US Centers for Disease Control and Prevention recommended that children aged 6 months through 8 years who had previously received ***less than 2*** total doses of trivalent or quadrivalent SIV at least 4 weeks apart before July 1, 2020 required 2 doses in the 2020-21 season.

[†††] Centers for Disease Control and Prevention. Interim Clinical Considerations for Use of COVID-19 Vaccines Currently Authorized in the United States, 5 March 2021. Available https://www.cdc.gov/vaccines/covid-19/info-by-product/clinical-considerations.html

[‡‡‡] World Health Organization. (2021). Interim recommendations for use of the Pfizer–BioNTech COVID-19 vaccine, BNT162b2, under Emergency Use Listing, 8 January 2021. Available at https://www.who.int/publications/i/item/WHO-2019-nCoV-vaccines-SAGE_recommendation-BNT162b2-2021.1

inactivated COVID-19 vaccines and other vaccines. It is suggested to have an interval of at least 14 days between administration of SIV and COVID-19 vaccines (BNT162b2 or Coronavac).

Vaccine Precautions

26. SIV are 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 SIV in primary care settings. Individuals with a history of anaphylaxis to egg should have SIV administered by health care professionals in appropriate medical facilities with capacity to recognise and manage severe allergic reactions. RIV contains no egg protein.

27. LAIV is a live vaccine and is generally contraindicated in the following conditions, taking reference from recommendations of the US, UK and Canada:

- History of severe allergic reaction to any vaccine component or after previous dose of any influenza vaccine;
- Concomitant aspirin or salicylate-containing therapy in children and adolescents;
- Children 2 years through 4 years who have asthma or who have had a history of wheezing in the past 12 months[§§§];
- Children and adults who are immunocompromised due to any cause;
- Close contacts and caregivers of severely immunosuppressed persons who require a protected environment;
- Pregnancy; and
- Receipt of influenza antiviral medication within previous 48 hours.

Priority Groups

28. Recommendations on the priority groups for seasonal influenza vaccination are summarised below:

[§§§] The UK recommended the use of IIV instead of LAIV for children with increased wheezing and/or needed additional bronchodilator treatment in previous 72 hours. Also, specialist advice should be sought on giving LAIV for children who require regular oral steroid for maintenance of asthma control or who have previously required intensive care for asthmatic attack. Canada recommended that individuals with severe asthma (currently on oral or high-dose inhaled glucocorticosteroids or active wheezing) or those with medically attended wheezing in the 7 days prior to vaccination should not use LAIV.

(a) Health Care Workers[****]: Health care workers are recommended as one of the highest priority groups for influenza vaccination during the COVID-19 pandemic.

(b) Persons Aged 50 Years or Above: Older adults (over the age of 65) are recommended as one of the highest priority groups for influenza vaccination during the COVID-19 pandemic. 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 ICU admission and death during seasons predominated by influenza A (H1N1)pdm09.

(c) Pregnant Women: Pregnant women remained to be the high priority group for vaccination, where supplies permit. 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. IIV is considered to be safe by the WHO for use at any gestational age of pregnancy and there is no evidence indicating that IIV is teratogenic even when given during the first trimester. However, LAIV should **not** be used in pregnant women.

(d) Residents of Residential Care Homes (such as Residential Care Homes for the Elderly [RCHE] or Residential Care Homes for Persons with Disabilities [RCHD]): For elderly, seasonal influenza vaccination is recommended for reducing the risk of complications from influenza including hospitalisation, pneumonia and death. For residents in RCHD, their disability hinders them from undertaking adequate hygiene measures in an institutional environment which favours the transmission of influenza. Seasonal influenza vaccination is therefore recommended for reducing influenza related hospitalisation during influenza outbreaks.

(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,

[****] Including care workers in RCHEs and RCHDs.

metabolic or kidney disease, obesity (body mass index 30 or above)[††††], who are immunocompromised[‡‡‡‡], 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 in view of their increased risk of complications and death associated with influenza infection. Of note, LAIV should not be used in immunocompromised persons.

(f) Children Aged Six Months to 11 Years: Seasonal influenza vaccination is recommended for children aged 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 potentially reduce school absenteeism and influenza transmission in the community.

(g) 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.

(h) Pig Farmers and Pig-slaughtering Industry Personnel: Pig farmers and pig-slaughtering industry personnel are recommended to receive SIV to prevent emergence of new influenza A virus in either human or pig hosts.

April 2021

[††††] Obesity is considered as an independent risk factor for influenza complication and thus people with body mass index of ≥30 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).