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FLU EXPRESS

衞生防護中心 Centre for Health Protection
保障市民健康 Protecting Hong Kong's health

Flu Express is a weekly report produced by Surveillance Division of the Communicable Disease Branch of the Centre for Health Protection. It monitors and summarizes the latest local and global influenza activities.

Local Situation of Influenza Activity (as of Jan 15, 2020)

Reporting period: Jan 5 – 11, 2020 (Week 2)

- The latest surveillance data showed that the overall local seasonal influenza activity continued to increase. Currently the predominating viruses are influenza A(H1), followed by influenza A(H3).
- Influenza can cause serious illnesses in high-risk individuals and even healthy persons. Given that seasonal influenza vaccines are safe and effective, all persons aged 6 months or above except those with known contraindications are recommended to receive influenza vaccine to protect themselves against seasonal influenza and its complications, as well as related hospitalisations and deaths.
- The 2019/20 seasonal influenza vaccination programmes, including Vaccination Subsidy Scheme and Government Vaccination Programme, have been launched on 9 and 23 October, 2019 respectively. For details, please refer to the webpage (http://www.chp.gov.hk/en/view_content/17980.html).
- Apart from getting influenza vaccination, members of the public should maintain good personal and environmental hygiene throughout the winter influenza season.
- For the latest information on influenza and prevention measures, please visit the Centre for Health Protection's pages below for more information:
  - The influenza page (http://www.chp.gov.hk/en/view_content/14843.html)
  - Webpage on Personal Hygiene (https://www.chp.gov.hk/en/healthtopics/content/460/19899.html)
  - Video on "Prevent diseases · Maintain good hygiene" (https://youtu.be/X0OxrsgAP2w)

Influenza-like-illness surveillance among sentinel general outpatient clinics and sentinel private medical practitioner clinics, 2016-20

In week 2, the average consultation rate for influenza-like illness (ILI) among sentinel general outpatient clinics (GOPC) was 6.1 ILI cases per 1,000 consultations, which was higher than 4.1 recorded in the previous week (Figure 1, left). The average consultation rate for ILI among sentinel private medical practitioner (PMP) clinics was 39.0 ILI cases per 1,000 consultations, which was higher than 28.7 recorded in the previous week (Figure 1, right).

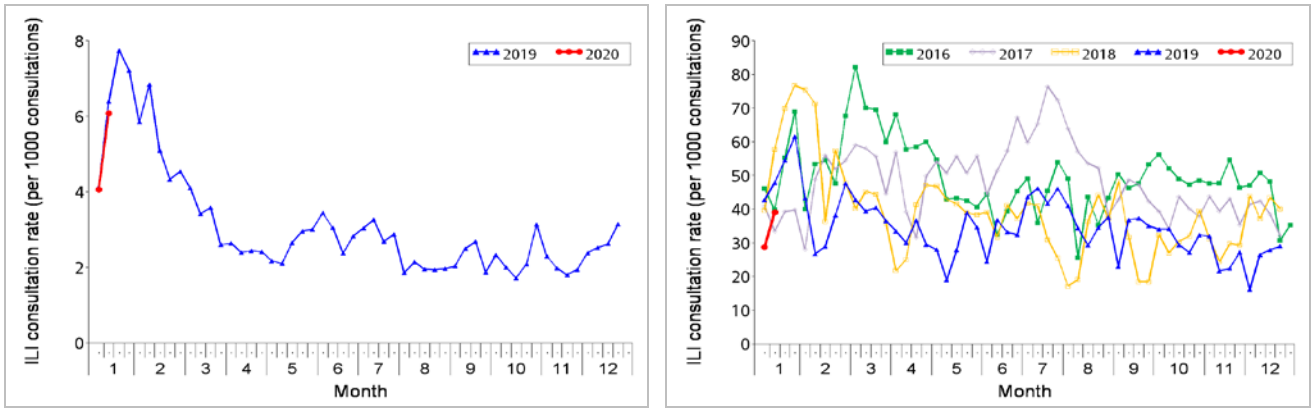

Figure 1 ILI consultation rates at sentinel GOPC (2019-20) (left) and PMP clinics (2016-20) (right)

Note: The CHP has started to use electronic data on diagnosis coding of patients of the Hospital Authority's GOPC for sentinel surveillance since January 2020, replacing manual data collection in the past.

Laboratory surveillance, 2016-20

Among the 6891 respiratory specimens received in week 2, 1203 (17.46%) were tested positive for seasonal influenza A or B viruses. These positive detections include 864 (72%) influenza A(H1), 306 (25%) influenza A(H3) and 33 (3%) influenza B viruses. The positive percentage (17.46%) was above the baseline threshold of 9.21% but was higher than 10.35% recorded in the previous week (Figure 2).

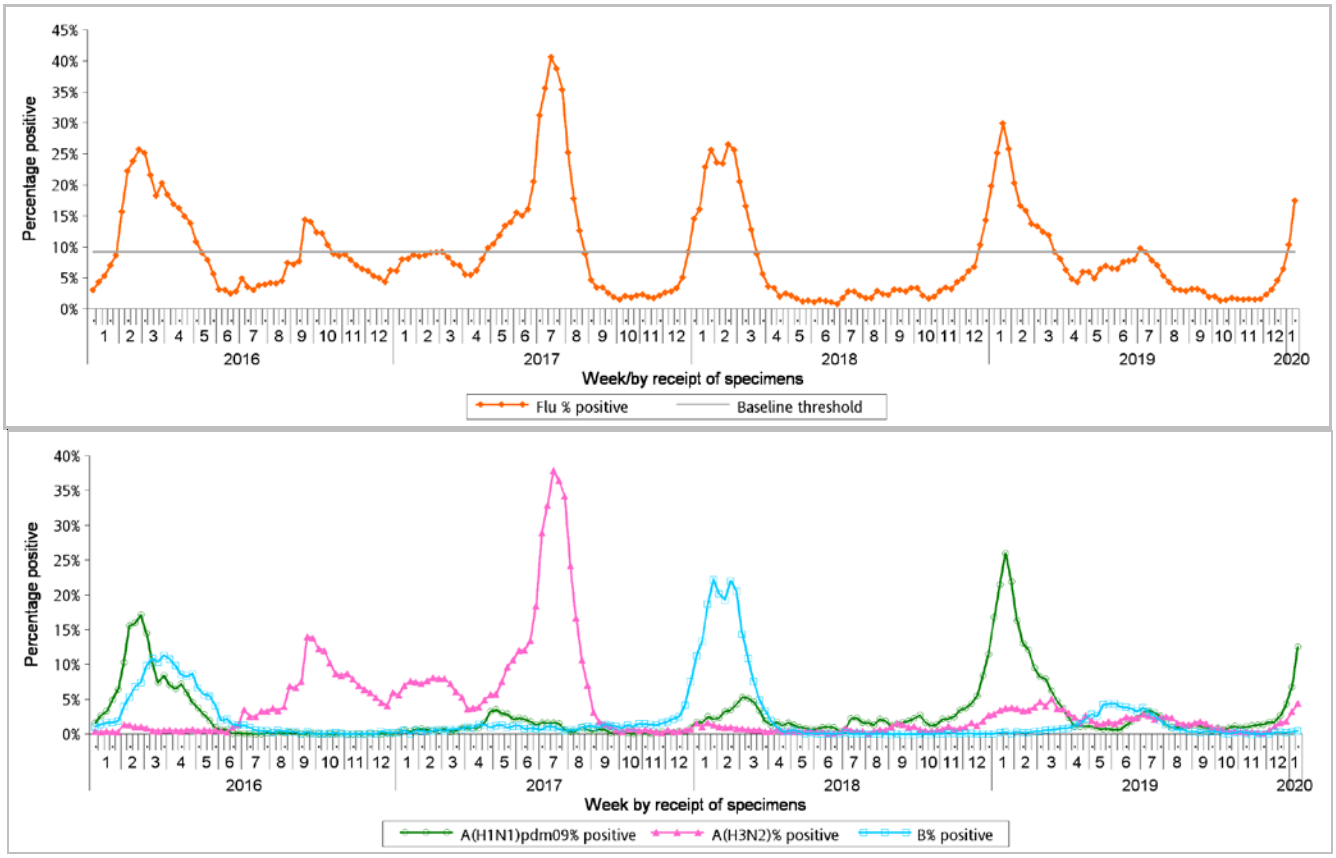

Figure 2 Percentage of respiratory specimens tested positive for influenza viruses, 2016-20 (upper: overall positive percentage, lower: positive percentage by subtypes)

[Note: The baseline threshold is 1.96 standard deviation above the average weekly positive percentage during non-season periods from 2014 week 49 - 2019 week 48.]

Surveillance of oseltamivir resistant influenza A and B viruses

- In October 2019, there were no new reports of oseltamivir (Tamiflu) resistant influenza A and B viruses.
- For the results of previous months, please refer to the following webpage: https://www.chp.gov.hk/en/statistics/data/10/641/695/6835.html

Antigenic characterisation of influenza viruses

Influenza viruses are antigenically characterised by haemagglutination inhibition test (HAI) using the antisera supplied by the World Health Organization.

Influenza A (H1): In January 2020, among the 64 influenza A(H1) viruses antigenically characterised by HAI, 63 (98.4%) were antigenically similar to the strain "A/Brisbane/02/2018(H1N1)pdm09" representing the A(H1) component of the 2019/20 Northern Hemisphere influenza vaccines, as compared with 93.3% (252/270) in December 2019.

Influenza A (H3): In January 2020, among the 40 influenza A(H3) viruses antigenically characterised by HAI, 11 (27.5%) were antigenically similar to the strain "A/Kansas/14/2017(H3N2)" representing the A(H3) component of the 2019/20 Northern Hemisphere influenza vaccines, as compared with 10.7% (16/150) in December 2019.

Influenza B/Victoria: In January 2020, among the 4 influenza B/Victoria lineage viruses antigenically characterised by HAI, 3 (75%) were antigenically similar to the strain "B/Colorado/06/2017" representing the B/Victoria component of the 2019/20 Northern Hemisphere influenza vaccines, as compared with 100% (18/18) in December 2019.

Influenza B/Yamagata: In December 2019 and January 2020, no influenza B/Yamagata lineage viruses were antigenically characterised by HAI due to the very small number of positive detections.

Results of antigenic characterisation of influenza viruses, January 2020 (as at January 8, 2020)

Virus type	Number tested	Antigenically similar* to vaccine viruses	Antigenically dissimilar/ Low reacting
Influenza A(H1)	64	63 (98.4%)	1 (1.6%)
Influenza A(H3)	40	11 (27.5%)	29^ (72.5%)
Influenza B/Victoria lineage	4	3 (75%)	1 (25%)
Influenza B/Yamagata lineage	0	0	0

*Reacting at titres that are within 4-fold difference of the titres of the vaccine viruses.

^21 with 8-fold and 8 with 16-fold differences of the vaccine virus titre.

Influenza-like illness outbreak surveillance, 2016-20

In week 2, 39 ILI outbreaks occurring in schools/institutions were recorded (affecting 216 persons), as compared to 3 outbreaks recorded in the previous week (affecting 13 persons) (Figure 3). The overall number was at the low intensity level currently (Figure 4*). In the first 4 days of week 3 (Jan 12 to 15), 53 ILI outbreaks in schools/ institutions were recorded (affecting 227 persons). Since the start of the 2019/20 winter influenza season in week 2, 92 outbreaks were recorded (as of January 15).

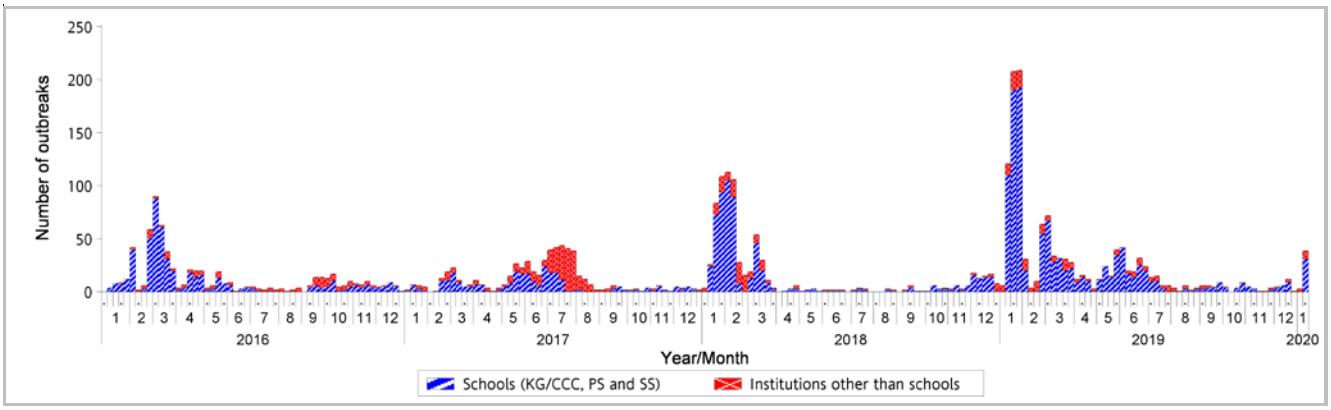

Figure 3 ILI outbreaks in schools/institutions, 2016-20

Type of institutions	Week 1	Week 2	Cumulative number of outbreaks since week 2 (as of January 15)
Child care centre/ kindergarten (CCC/KG)	0	16	41
Primary school (PS)	0	13	29
Secondary school (SS)	0	2	3
Residential care home for the elderly	2	4	9
Residential care home for persons with disabilities	0	2	5
Others	1	2	5
Total number of outbreaks	3	39	92
Total number of persons affected	13	216	443

In comparison, 12, 15, 26 and 6 outbreaks were recorded in the same duration of surveillance (one complete week) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 39 outbreaks in the current season (Figure 5).

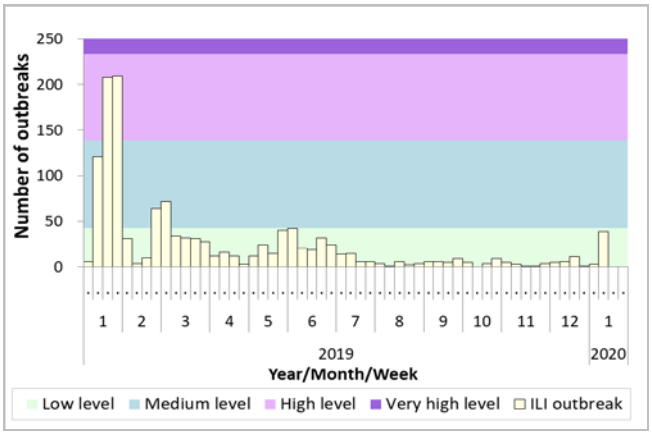

Figure 4 ILI outbreaks in schools/institutions, 2019-20

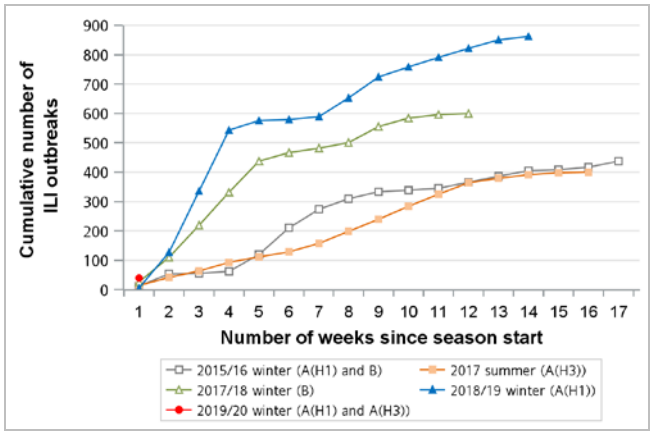

Figure 5 Cumulative numbers of ILI outbreaks reported during major influenza seasons, 2016–20

** Various intensity levels applicable for this year were calculated with the moving epidemic method (MEM) based on the relevant historical data recorded from 2010 week 49 to 2019 week 48. For details, please refer to this webpage: https://www.chp.gov.hk/files/pdf/explanatory_note_for_flux_mem_eng.pdf*

Influenza-associated hospital admission rates in public hospitals based on discharge coding, 2016-20

In week 2, the overall admission rate in public hospitals with principal diagnosis of influenza was 0.70 (per 10,000 population) as compared to 0.46 recorded in the previous week (Figure 6). The overall rate was above the baseline threshold of 0.25 and at the medium intensity level (Figure 7*). The influenza-associated admission rates for persons aged 0-5 years, 6-11 years, 12-17 years, 18-49 years, 50-64 years and 65 years or above were 4.45, 1.08, 0.59, 0.26, 0.37 and 1.25 cases (per 10,000 people in the age group) respectively, as compared to 2.86, 0.65, 0.56, 0.16, 0.24 and 0.83 cases in the previous week (Figure 6).

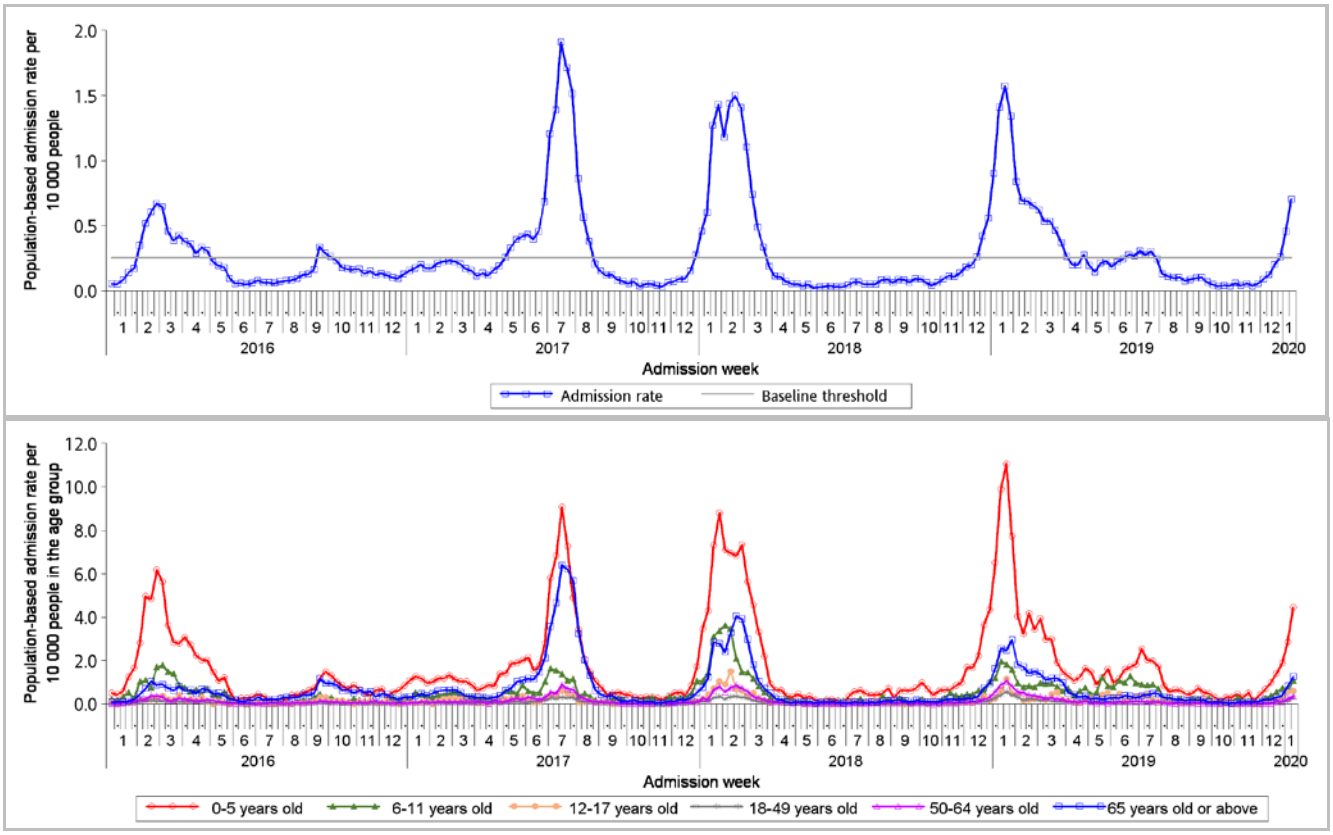

Figure 6 Influenza-associated hospital admission rates, 2016-20 (upper: overall rate, lower: rates by age groups)

[Note: The baseline threshold is 1.96 standard deviation above the average weekly admission rate during non-season periods from 2014 week 49 – 2019 week 48.]

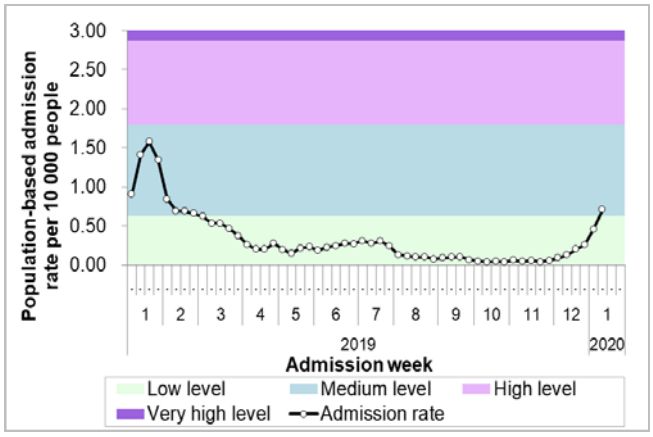

Figure 7 Influenza-associated hospital admission rates, 2019-20

**Various intensity levels applicable for this year were calculated with the moving epidemic method (MEM) based on the relevant historical data recorded from 2010 week 49 to 2019 week 48. For details, please refer to this webpage: https://www.chp.gov.hk/files/pdf/explanatory_note_for_flux_mem_eng.pdf*

Rate of ILI syndrome group in accident and emergency departments, 2016-20#

In week 2, the rate of the ILI syndrome group in the accident and emergency departments (AEDs) was 233.6 (per 1,000 coded cases), which was higher than the rate of 201.2 in the previous week (Figure 8).

#Note: This syndrome group includes codes related to ILI such as influenza, upper respiratory tract infection, fever, cough, throat pain, and pneumonia.

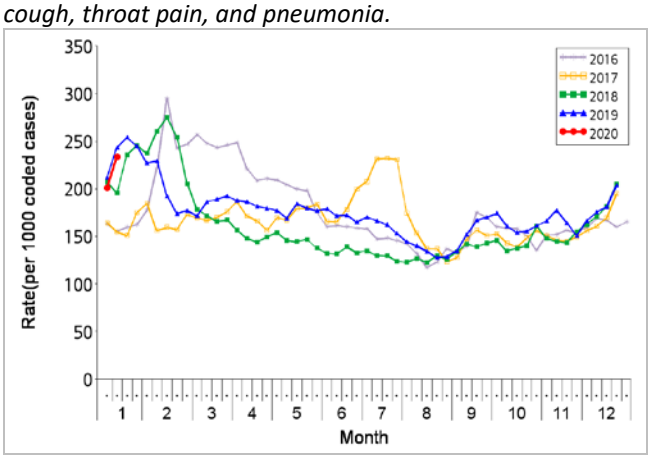

Figure 8 Rate of ILI syndrome group in AEDs, 2016-20

Fever surveillance at sentinel child care centres/ kindergartens, 2016-20

In week 2, 0.73% of children in the sentinel child care centres / kindergartens (CCCs/KGs) had fever (38°C or above) as compared to 0.80% recorded in week 51, 2019 (Figure 9). The surveillance from week 52, 2019 to week 1, 2020 was suspended due to Christmas holiday and New Year holiday.

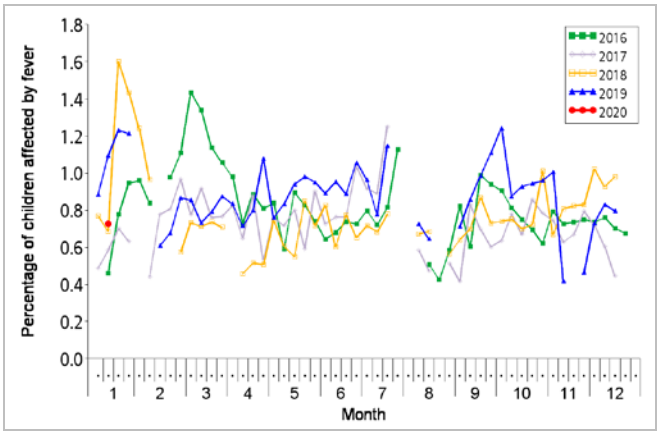

Figure 9 Percentage of children with fever at sentinel CCCs/KGs, 2016-20

Fever surveillance at sentinel residential care homes for the elderly, 2016-20

In week 2, 0.15% of residents in the sentinel residential care homes for the elderly (RCHEs) had fever (38°C or above), compared to 0.10% recorded in the previous week (Figure 10).

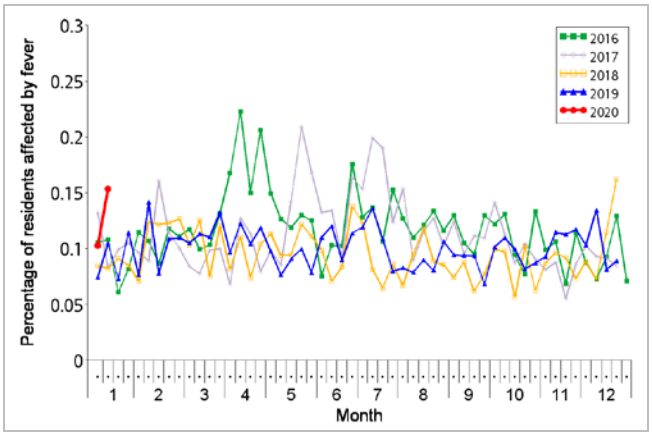

Figure 10 Percentage of residents with fever at sentinel RCHEs, 2016-20

Influenza-like illness surveillance among sentinel Chinese medicine practitioners, 2016-20

In week 2, the average consultation rate for ILI among Chinese medicine practitioners (CMPs) was 2.63 ILI cases per 1,000 consultations as compared to 1.75 recorded in the previous week (Figure 11).

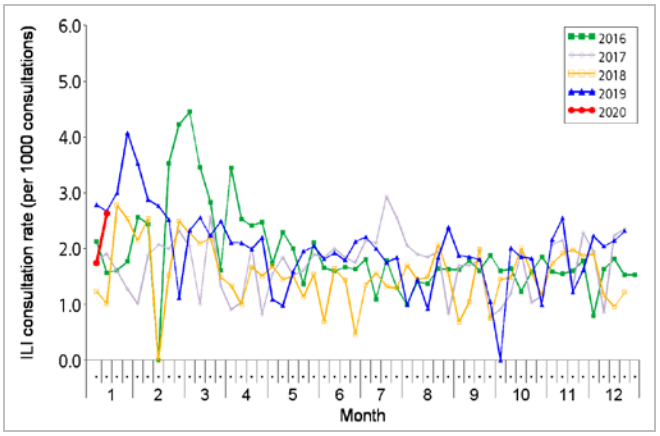

Figure 11 ILI consultation rate at sentinel CMPs, 2016-20

Surveillance of severe influenza cases

(Note: The data reported are provisional figures and subject to further revision.)

Surveillance for intensive care unit (ICU) admissions/deaths with laboratory confirmation of influenza among adult patients (Aged 18 years or above)

Since 2018, the Centre for Health Protection (CHP) has collaborated with the Hospital Authority and private hospitals to monitor ICU admissions and deaths with laboratory confirmation of influenza among adult patients regularly. For surveillance purpose, the cases refer to laboratory-confirmed influenza patients who required ICU admission or died within the same admission of influenza infection. Their causes of ICU admission or death may be due to other acute medical conditions or underlying diseases.

- In week 2, 19 adult cases of ICU admission/death with laboratory confirmation of influenza were recorded, in which 7 of them were fatal. Two of the 19 severe adult cases were known to have received the 2019/20 influenza vaccine. In the first 4 days of week 3 (Jan 12 to 15), 28 cases were recorded, in which 10 of them were fatal.

Week	Influenza type			
	A(H1)	A(H3)	B	A (pending subtype)
Week 2	13	3	0	3
First 4 days of week 3 (Jan 12 to 15)	16	4	0	8

- Since the start of the 2019/20 winter influenza season in week 2, 47 adult cases of ICU admission/death with laboratory confirmation of influenza were recorded, in which 17 of them were fatal (as of January 15). Among them, 29 patients had influenza A(H1) infection, 7 patients with influenza A(H3) and 11 patients with influenza A pending subtype.

- In comparison, 18, 11, 23 and 37 adult cases were recorded in the same duration of surveillance (one complete week) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 19 cases in the current season (Figure 12, left).The corresponding figures for deaths were 3, 6, 17, 17 in the above seasons, as compared with 7 deaths in the current season (Figure 12, right).

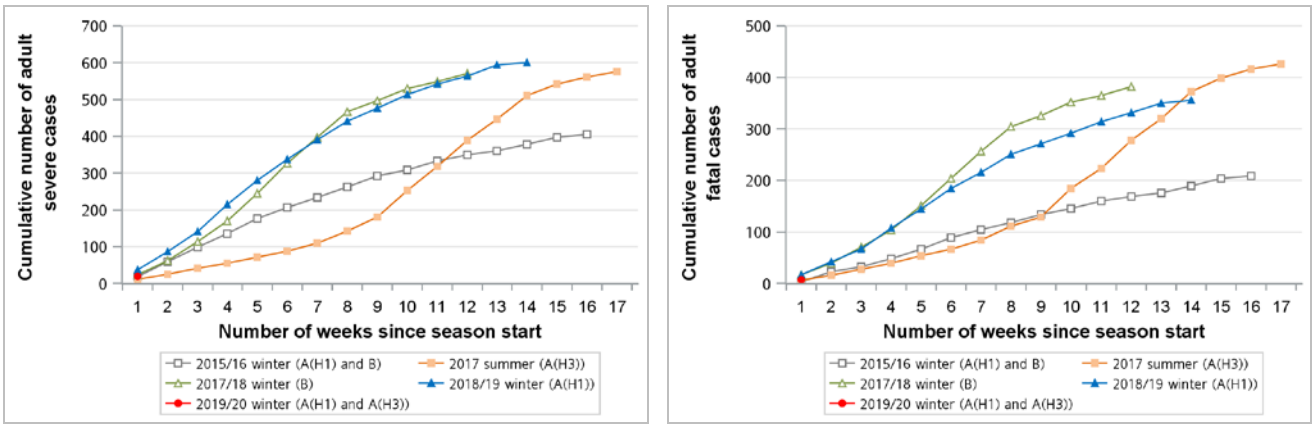

Figure 12 Cumulative numbers of adult severe influenza cases reported during major influenza seasons, 2016–20 (left: ICU admission/death cases; right: deaths)

Note: The predominating virus was shown in bracket.

Surveillance of severe paediatric influenza-associated complication/death (Aged below 18 years)

- In week 2 and the first 4 days of week 3 (Jan 12 to 15), there were no cases of severe paediatric influenza-associated complication/death.
- In 2020, one paediatric non-fatal case of influenza-associated complication were recorded (as of Jan 15). It was reported before the start of winter influenza season this year. The patient had infection with influenza A(H3). He did not receive the influenza vaccine for the 2019/20 season.
- In comparison, 0, 1, 1 and 5 paediatric cases of influenza-associated complication/death were recorded in the same duration of surveillance (one complete week) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 0 cases in the current season (Figure 13, left).The corresponding figures for deaths were 0, 0, 1 and 0 in the above seasons, as compared with 0 death in current season (Figure 13, right).

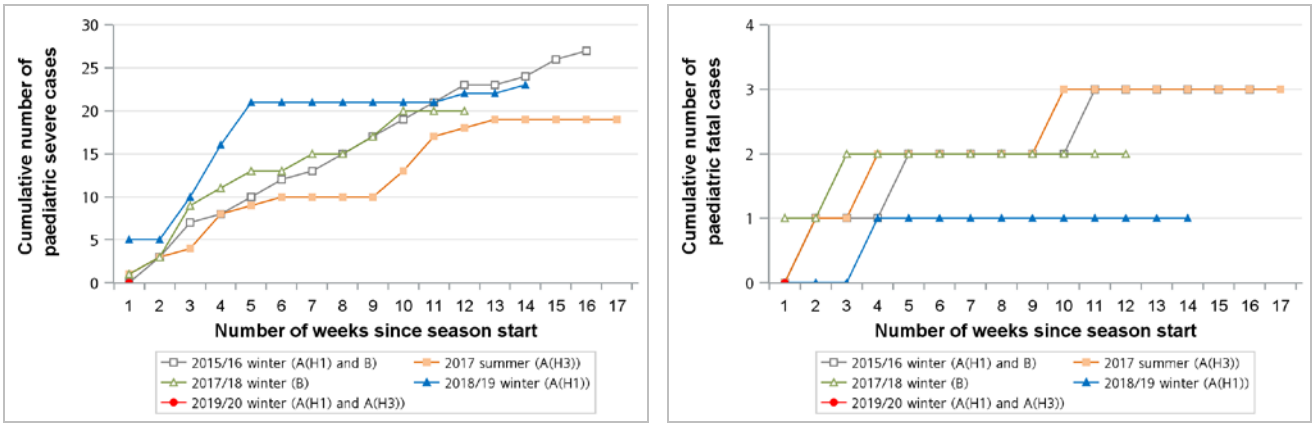

Figure 13 Cumulative numbers of cases of paediatric influenza-associated complication/death reported during major influenza seasons, 2016–20 (left: complication/death cases; right: deaths)

Note: The predominating virus was shown in bracket.

Severe influenza cases of all ages

- Since the start of the current winter influenza season in week 2, 47 severe influenza cases among all ages have been reported, including 17 deaths (as of January 15).

Age group	Cumulative number of cases (death)
0-5	0 (0)
6-11	0 (0)
12-17	0 (0)
18-49	9 (0)
50-64	15 (3)
>=65	23 (14)

- Among the adult fatal cases, about 73% had chronic diseases.

- Among patients with laboratory confirmation of influenza admitted to public hospitals in this season (from January 5 to 15, 2020), 0.9% of admitted cases died during the same episode of admission. So far, it was below the historical range between 1.9% (2015/16 winter season) and 3.3% (2015 summer season).

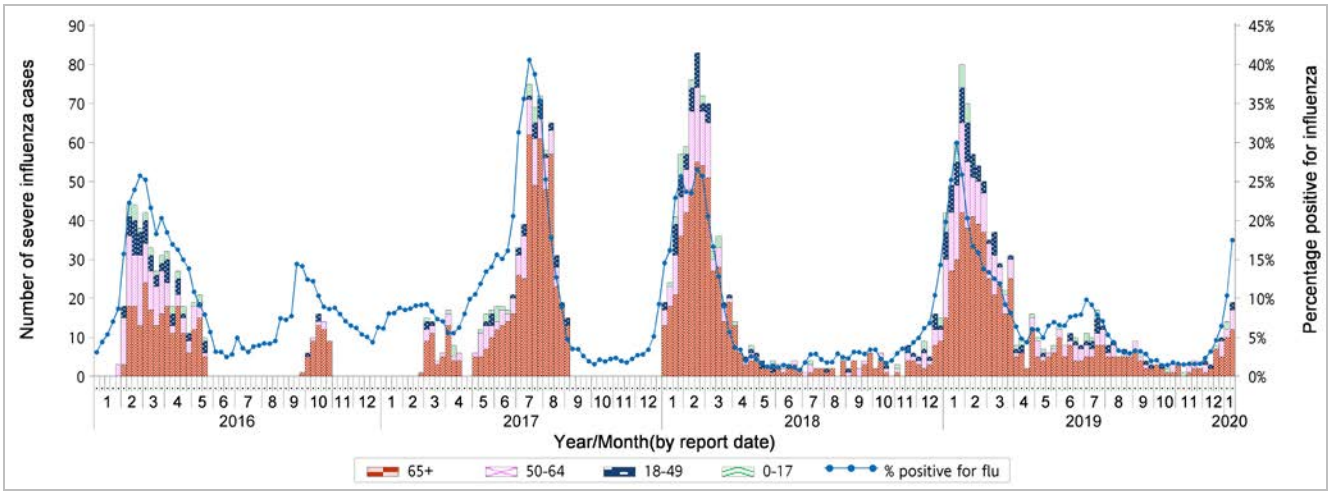

Figure 14 Weekly number of severe influenza cases by age groups, 2016-20 (the percentage positive for influenzas viruses in Figure 2 is also shown in this graph)
Note: The surveillance system for severe influenza cases among adult patients aged 18 years or above was only activated intermittently during influenza seasons before 2018.

Global Situation of Influenza Activity

In the temperate zone of the northern hemisphere, influenza activity continued to increase in most countries. In South East Asia, influenza activity was reported in Lao PDR and Malaysia. In Southern Asia, influenza activity was low in most reporting countries. In the temperate zones of the southern hemisphere, influenza activity remained at inter-seasonal levels. Worldwide, seasonal influenza A(H3N2) viruses accounted for the majority of detections.

- In the United States (week ending Jan 4, 2020), influenza activity remained high but indicators that track severity (hospitalizations and deaths) were not high at this point in the season. The proportion of outpatient visits for ILI decreased from 7% to 5.8%, which was above the national baseline of 2.4%. The percentage of respiratory specimens testing positive for influenza decreased to 23.3% from 26.4% recorded in the previous week. Nationally, influenza B (Victoria) viruses were the most common followed by influenza A(H1N1)pdm09 viruses.
- In Canada (week ending Jan 4, 2020), the influenza season started in the week ending November 23 and the influenza activity continued to increase. The percentage of tests positive for influenza increased to 27%, above the seasonal threshold of 5%. Influenza A(H3N2), A(H1N1) and B continued to co-circulate. Although influenza A remained the predominant circulating type, influenza B continued to circulate at higher levels than usual.
- In the United Kingdom (week ending Jan 5, 2020), influenza activity remained high but was decreasing across some indicators. The positivity of influenza detection decreased from 22.2% to 18.8%, which remained above the baseline threshold of 9.7%. The most common influenza viruses detected were influenza A(H3).
- In Europe (week ending Jan 5, 2020), influenza activity remained elevated. The majority of reported influenza virus detections were influenza A (60%), but some countries reported influenza B virus dominance or co-dominance of types A and B viruses.
- In Mainland China (week ending Jan 5, 2020), influenza activity in both northern and southern provinces continued to increase and had entered the influenza seasons. Some provinces had higher levels of influenza activity. Influenza A(H3N2) and influenza B(Victoria) viruses were predominant in southern provinces, while influenza A(H3N2) viruses were predominant in northern provinces .
- In Macau (week ending Jan 4, 2020), influenza season has started in late December. The overall numbers of ILI cases continued to increase. The predominating viruses were influenza A(H1), followed by influenza A(H3) viruses.
- In Taiwan (week ending Jan 11, 2020), influenza activity was at a high level. Recently influenza A(H1N1) was the predominant strain in the community.
- In Japan (week ending Jan 5, 2020), the influenza season has started in mid-November. The average number of reported ILI cases per sentinel site decreased to 13.93 from 23.24 in the previous week, which was above the baseline level of 1.00. The predominating virus detected in the past five weeks was influenza A(H1)pdm09 (98%), followed by influenza A(H3) (1%) and influenza B (1%).
- In Korea (week ending Jan 4, 2020), the weekly ILI rate was 49.1, lower than 49.8 recorded in the previous week. The proportion of influenza detections was 43.4%, and the most common detected viruses were influenza A(H1)pdm09.

Sources:

Information have been extracted from the following sources when updates are available: World Health Organization, United States Centers for Disease Control and Prevention, Public Health Agency of Canada, Public Health England, Joint European Centre for Disease Prevention and Control-World Health Organization/Flu News Europe, Chinese National Influenza Center, Health Bureau of Macao Special Administrative Region, Taiwan Centres for Disease Control. Japan Ministry of Health, Labour and Welfare and Korean Centers for Disease Control and Prevention.