

# FLU EXPRESS



*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 Feb 5, 2020)

**Reporting period: Jan 26 – Feb 1, 2020 (Week 5)**

- The latest surveillance data showed that the overall local seasonal influenza activity slightly decreased as compared to the previous week but still remained elevated. 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](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](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 5, the average consultation rate for influenza-like illness (ILI) among sentinel general outpatient clinics (GOPC) was 4.5 ILI cases per 1,000 consultations, which was lower than 6.7 recorded in the previous week (Figure 1, left). The average consultation rate for ILI among sentinel private medical practitioner (PMP) clinics was 20.5 ILI cases per 1,000 consultations, which was higher than 15.5 recorded in the previous week (Figure 1, right).

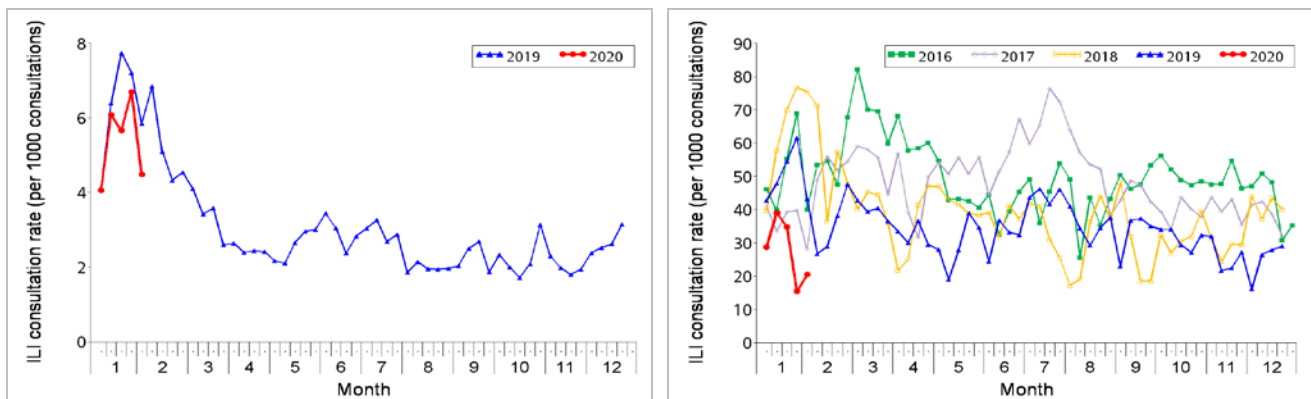


Figure 1 ILI consultation rates at sentinel GOPC (2019-20) (left) and PMP clinics (2016-20) (right)

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 7076 respiratory specimens received in week 5, 1001 (14.15%) were tested positive for seasonal influenza A or B viruses. These positive detections include 846 (85%) influenza A(H1), 114 (11%) influenza A(H3) and 41 (4%) influenza B viruses. The positive percentage (14.15%) was above the baseline threshold of 9.21% but was lower than 18.76% recorded in the previous week (Figure 2).

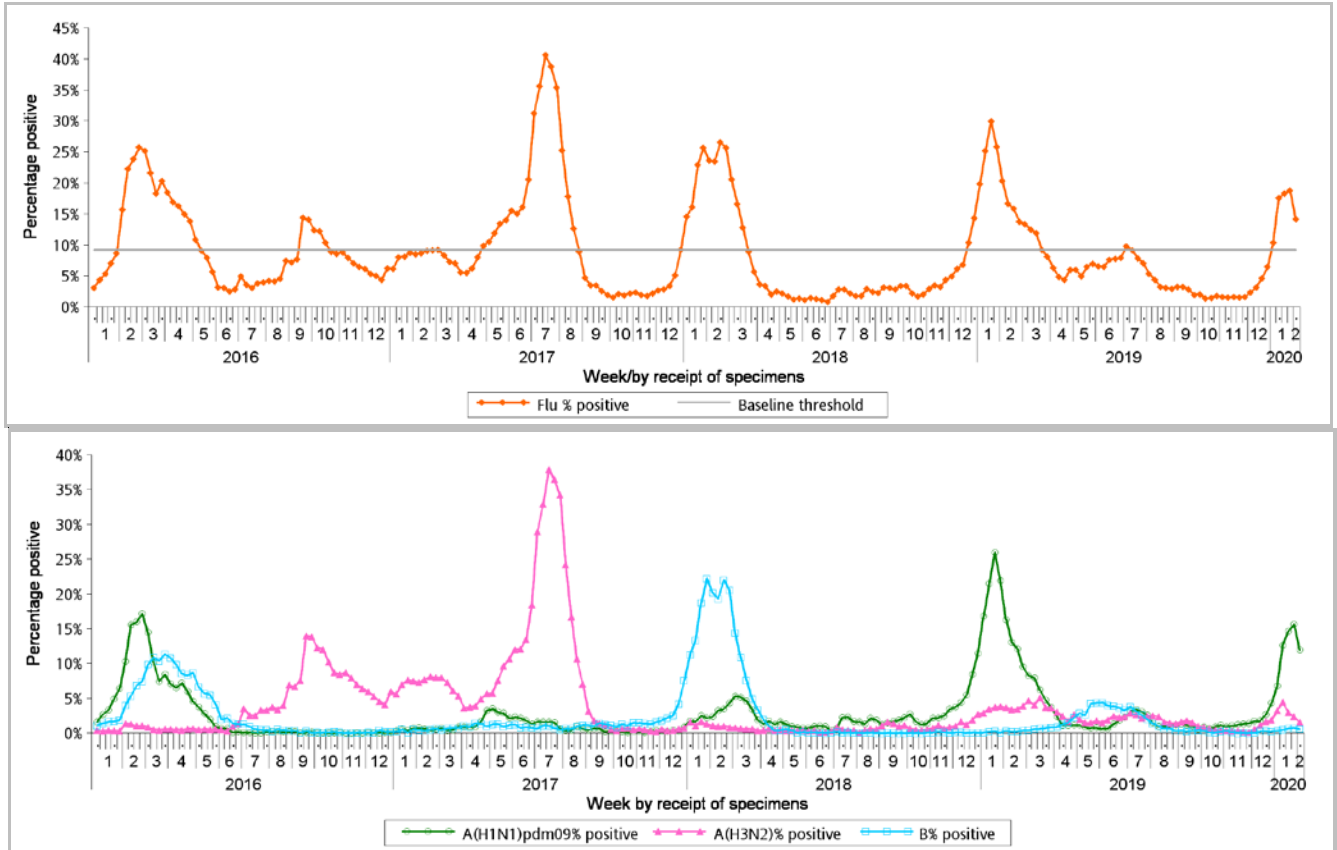


Figure 2 Percentage of respiratory specimens tested positive for influenza viruses, 2016-20 (upper: overall positive percentage, lower: positive percentage by subtypes)

[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 320 influenza A(H1) viruses antigenically characterised by HAI, 310 (96.9%) 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 104 influenza A(H3) viruses antigenically characterised by HAI, 20 (19.2%) 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 9 influenza B/Victoria lineage viruses antigenically characterised by HAI, 8 (88.9%) 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 30, 2020)

| Virus type                   | Number tested | Antigenically similar* to vaccine viruses | Antigenically dissimilar/ Low reacting |
|------------------------------|---------------|---|--|
| Influenza A(H1)              | 320           | 310 (96.9%)                               | 10 <sup>#</sup> (3.1%)                 |
| Influenza A(H3)              | 104           | 20 (19.2%)                                | 84 <sup>^</sup> (80.8%)                |
| Influenza B/Victoria lineage | 9             | 8 (88.9%)                                 | 1 (11.1%)                              |
| Influenza B/Yamagata lineage | 0             | 0   | 0                                      |

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

# 8 with 8-fold and 2 with 32-fold or more differences of the vaccine virus titre

<sup>^</sup>48 with 8-fold, 36 with 16-fold or more differences of the vaccine virus titre

### Influenza-like illness outbreak surveillance, 2016-20

In week 5, 5 ILI outbreaks occurring in schools/institutions were recorded (affecting 39 persons), as compared to 39 outbreaks recorded in the previous week (affecting 178 persons) (Figure 3). The overall number was at the low intensity level currently (Figure 4\*). In the first 4 days of week 6 (Feb 2 to 5), 5 ILI outbreaks in schools/ institutions were recorded (affecting 23 persons). Since the start of the 2019/20 winter influenza season in week 2, 153 outbreaks were recorded (as of Feb 5).

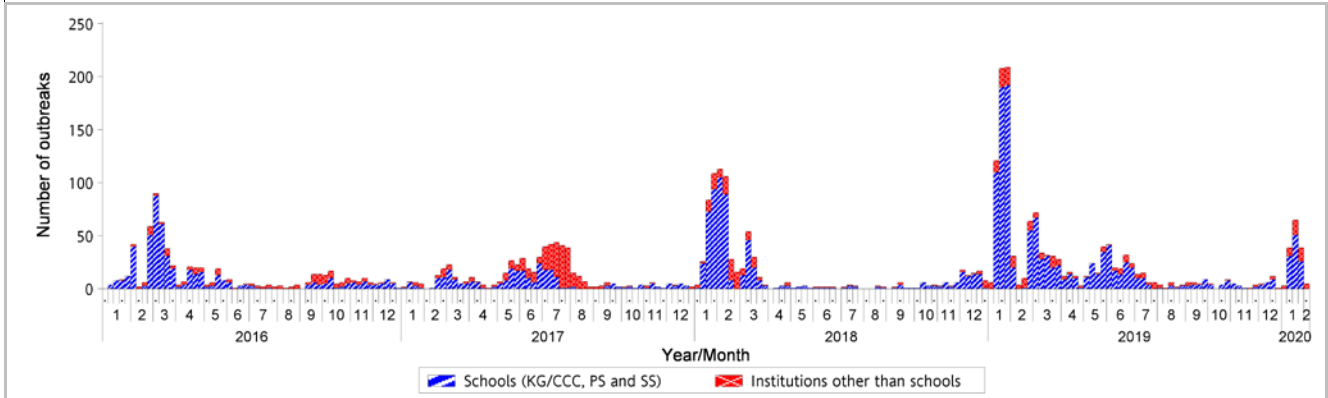


Figure 3 ILI outbreaks in schools/institutions, 2016-20

| Type of institutions                                | Week 4 | Week 5 | Cumulative number of outbreaks since week 2 (as of February 5) |
|---|--------|--------|--|
| Child care centre/ kindergarten (CCC/KG)            | 17     | 0      | 61   |
| Primary school (PS)                                 | 5      | 0      | 38   |
| Secondary school (SS)                               | 4      | 0      | 9  |
| Residential care home for the elderly               | 5      | 3      | 21   |
| Residential care home for persons with disabilities | 6      | 1      | 15   |
| Others  | 2      | 1      | 9  |
| <i>Total number of outbreaks</i>                    | 39     | 5      | 153  |
| <i>Total number of persons affected</i>             | 178    | 39     | 791  |

In comparison, 62, 93, 332 and 544 outbreaks were recorded in the same duration of surveillance (4 complete weeks) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 148 outbreaks in the current season (Figure 5).

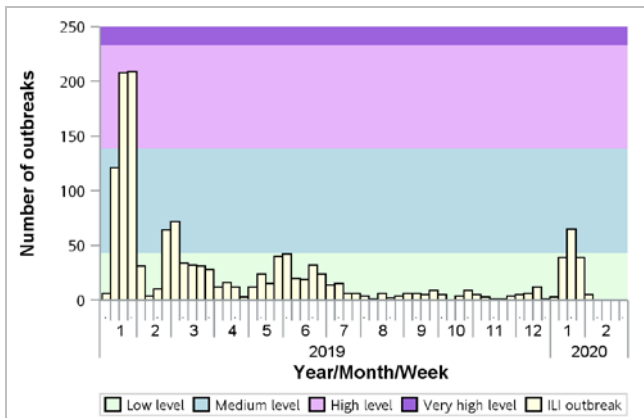


Figure 4 ILI outbreaks in schools/institutions, 2019-20

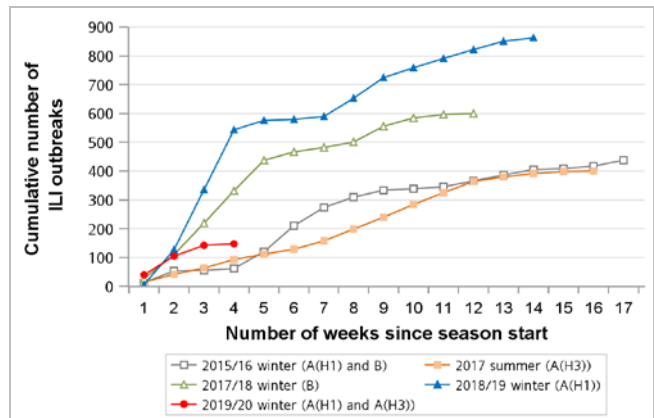


Figure 5 Cumulative numbers of ILI outbreaks reported during major influenza seasons, 2016–20

\* 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](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 5, the overall admission rate in public hospitals with principal diagnosis of influenza was 0.53 (per 10,000 population) as compared to 0.89 recorded in the previous week (Figure 6). The overall rate was above the baseline threshold of 0.25 but at the low 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 1.52, 0.48, 0.31, 0.32, 0.40 and 1.03 cases (per 10,000 people in the age group) respectively, as compared to 3.55, 0.99, 0.53, 0.45, 0.61 and 1.76 cases in the previous week (Figure 6).

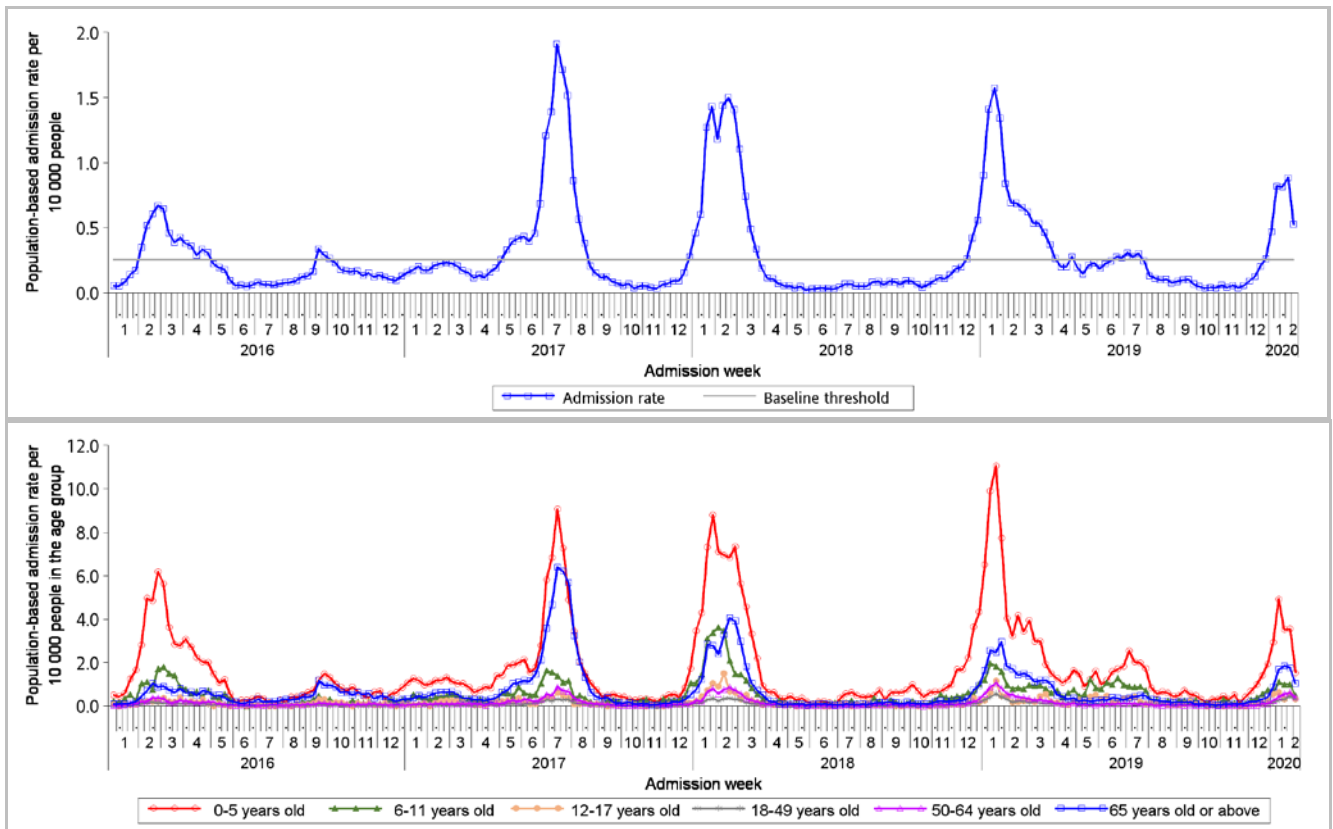


Figure 6 Influenza-associated hospital admission rates, 2016-20 (upper: overall rate, lower: rates by age groups)  
 [Note: The baseline threshold is 1.96 standard deviation above the average weekly admission rate during non-season periods from 2014 week 49 – 2019 week 48.]

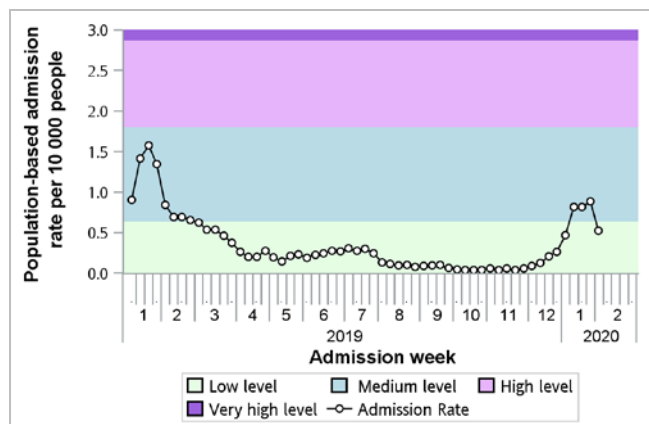


Figure 7 Influenza-associated hospital admission rates, 2019-20

\*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](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<sup>#</sup>

In week 5, the rate of the ILI syndrome group in the accident and emergency departments (AEDs) was 324.3 (per 1,000 coded cases), which was higher than the rate of 275.4 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.*

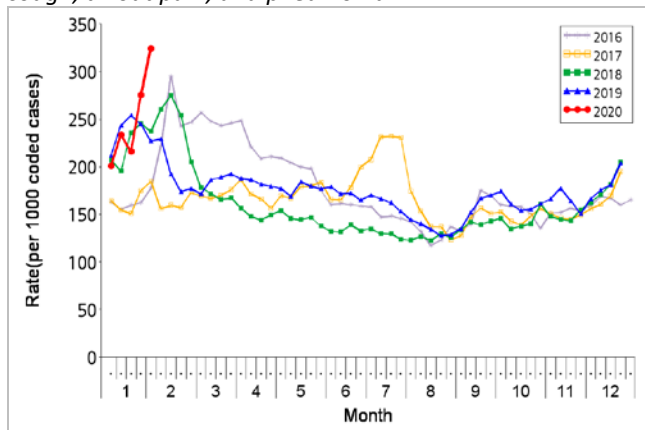


Figure 8 Rate of ILI syndrome group in AEDs, 2016-20

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

The surveillance in week 5 was suspended due to temporary school suspension. In week 4, 0.84% of children in the sentinel child care centres / kindergartens (CCCs/KGs) had fever (38°C or above) as compared to 0.70% recorded in the previous week (Figure 9).

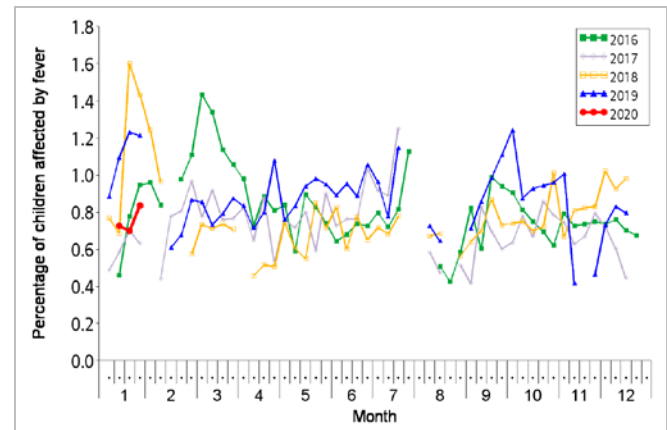


Figure 9 Percentage of children with fever at sentinel CCCs/KGs, 2016-20

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

In week 5, 0.08% 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).

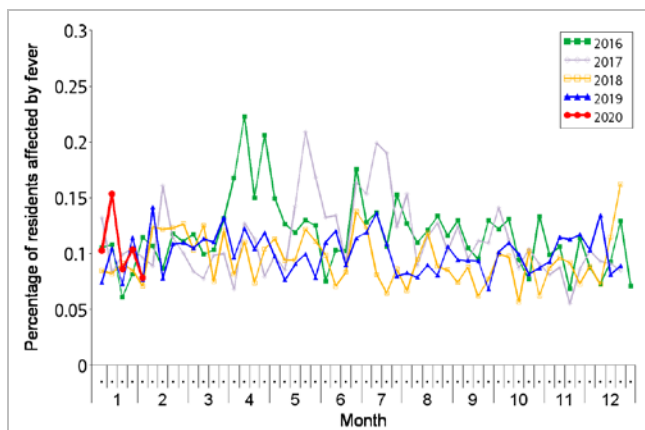


Figure 10 Percentage of residents with fever at sentinel RCHEs, 2016-20

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

In week 5, the average consultation rate for ILI among Chinese medicine practitioners (CMPs) was 1.77 ILI cases per 1,000 consultations as compared to 1.56 recorded in the previous week (Figure 11).

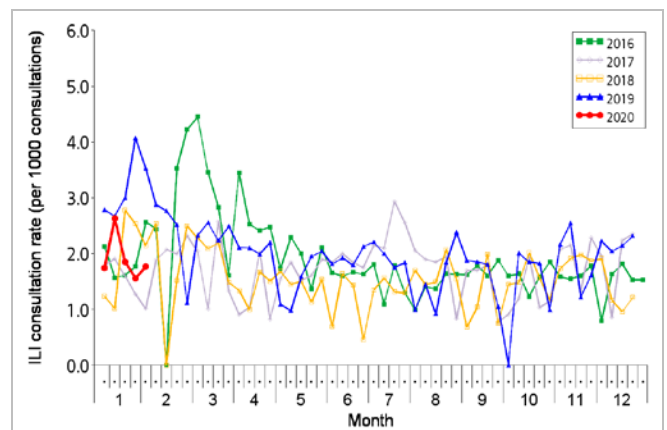


Figure 11 ILI consultation rate at sentinel CMPs, 2016-20

## 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 5, 43 adult cases of ICU admission/death with laboratory confirmation of influenza were recorded, in which 29 of them were fatal. 11 of the 43 severe adult cases were known to have received the 2019/20 influenza vaccine. In the first 4 days of week 6 (Feb 2 to 5), 17 cases were recorded, in which 12 of them were fatal.

| Week                                | Influenza type |       |   |                     |
|-------------------------------------|----------------|-------|---|---------------------|
|                                     | A(H1)          | A(H3) | B | A (pending subtype) |
| Week 5                              | 30             | 4     | 0 | 9                   |
| First 4 days of week 6 (Feb 2 to 5) | 14             | 0     | 0 | 3                   |

- Since the start of the 2019/20 winter influenza season in week 2, 164 adult cases of ICU admission/death with laboratory confirmation of influenza were recorded, in which 94 of them were fatal (as of Feb 5). Among them, 129 patients had influenza A(H1) infection, 19 patients with influenza A(H3), one patient with influenza B, 14 patients with influenza A pending subtype and one patient with influenza A(H1) and C.
- In comparison, 136, 55, 170 and 215 adult cases were recorded in the same duration of surveillance (4 complete weeks) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 147 cases in the current season (Figure 12, left). The corresponding figures for deaths were 48, 39, 104, 107 in the above seasons, as compared with 82 deaths in the current season (Figure 12, right).

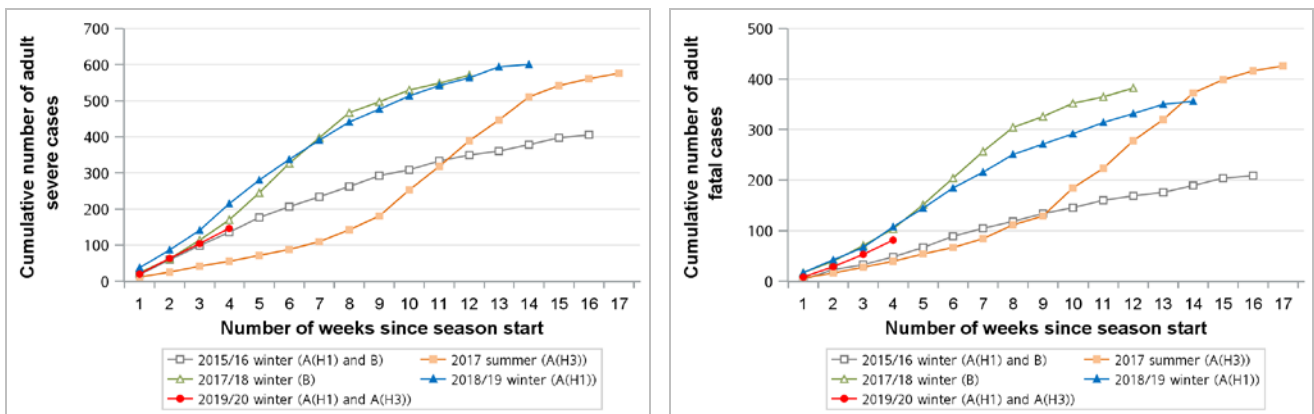


Figure 12 Cumulative numbers of adult severe influenza cases reported during major influenza seasons, 2016–20 (left: ICU admission/death cases; right: deaths)

Note: The predominating virus was shown in bracket.

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

- In week 5 and the first 4 days of week 6 (Feb 2 to 5), there were three cases of severe paediatric influenza-associated complication/death.

| Reporting week | Age     | Sex    | Complication               | Fatal case? | Influenza subtype | Ever received influenza vaccine for this season |
|----------------|---------|--------|----------------------------|-------------|-------------------|---|
| 5              | 7 years | Male   | Encephalopathy and seizure | No          | Influenza A(H1)   | No  |
| 5              | 5 years | Female | Severe pneumonia           | No          | Influenza A(H1)   | No  |
| 6              | 8 years | Male   | Encephalopathy             | No          | Influenza A(H1)   | Yes   |

- Since the start of winter influenza season this year, five paediatric non-fatal cases of influenza-associated complication were reported (as of Feb 5). All cases had infections with influenza A(H1). Four of them did not receive the influenza vaccine for the 2019/20 season. In 2020, six paediatric non-fatal cases of influenza-associated complication were recorded.
- In comparison, 8, 8, 11 and 16 paediatric cases of influenza-associated complication/death were recorded in the same duration of surveillance (4 complete weeks) in the 2015/16 winter, 2017 summer, 2017/18 winter and 2018/19 winter seasons respectively, as compared with 4 cases in the current season (Figure 13, left). The corresponding figures for deaths were 1, 2, 2 and 1 in the above seasons, as compared with 0 death in current season (Figure 13, right).

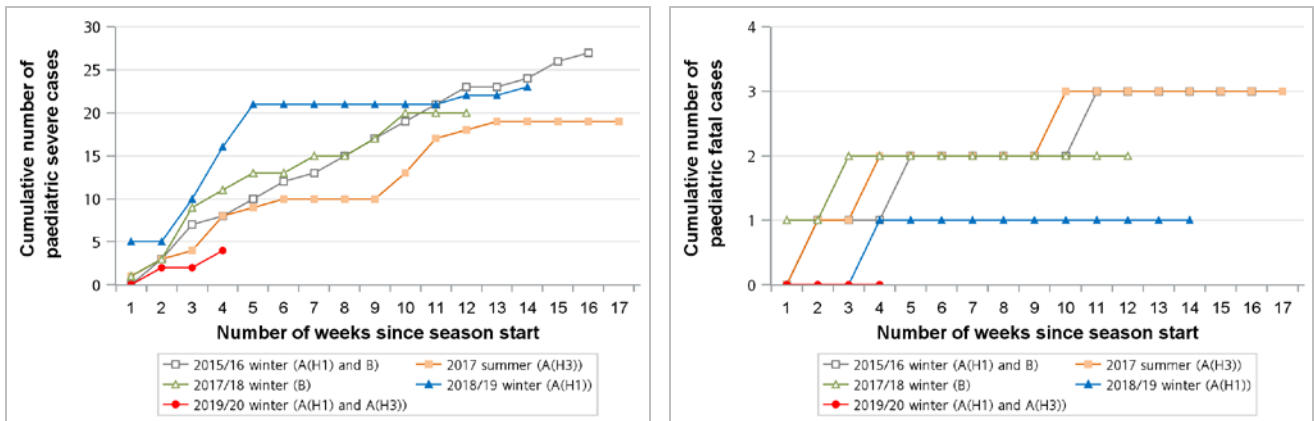


Figure 13 Cumulative numbers of cases of paediatric influenza-associated complication/death reported during major influenza seasons, 2016–20 (left: complication/death cases; right: deaths)

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, 169 severe influenza cases among all ages have been reported, including 94 deaths (as of February 5).

| Age group | Cumulative number of cases (death) |
|-----------|------------------------------------|
| 0-5       | 3 (0)                              |
| 6-11      | 2 (0)                              |
| 12-17     | 0 (0)                              |
| 18-49     | 20 (3)                             |
| 50-64     | 37 (15)                            |
| >=65      | 107 (76)                           |

- Among the adult fatal cases, about 83% had chronic diseases.
- Among patients with laboratory confirmation of influenza admitted to public hospitals in this season (from January 5 to February 5, 2020), 2.0% of admitted cases died during the same episode of admission. So far, it was within the historical range between 1.9% (2015/16 winter season) and 3.3% (2015 summer season).

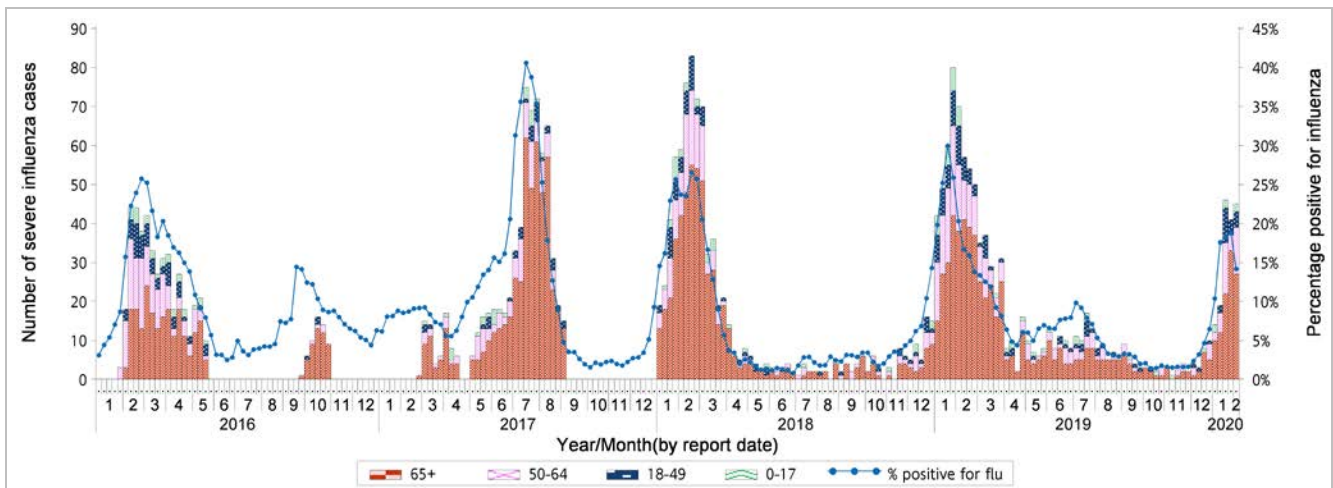


Figure 14 Weekly number of severe influenza cases by age groups, 2016-20 (the percentage positive for influenza viruses in Figure 2 is also shown in this graph)

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 remained elevated overall. In South East Asia, influenza activity continued to be reported in Lao PDR and Malaysia and increased in Singapore. In the temperate zones of the southern hemisphere, influenza activity remained at inter-seasonal levels. Worldwide, seasonal influenza A viruses accounted for the majority of detections.

- In the United States (week ending Jan 25, 2020), influenza activity remained high and increased in the past two weeks. Indicators that track severity (hospitalizations and deaths) were not high at this point in the season. The proportion of outpatient visits for ILI increased to 5.7%, which was above the national baseline of 2.4%. The percentage of respiratory specimens testing positive for influenza increased to 27.7% from 25.7% recorded in the previous week. Nationally, influenza B (Victoria) viruses were predominant this season but influenza A(H1N1)pdm09 viruses have been reported more frequently than B/Victoria viruses in recent weeks.
- In Canada (week ending Jan 25, 2020), the influenza activity remained high with many indicators similar to or slightly higher than the previous week. The percentage of tests positive for influenza increased to 28%, which was slightly higher than the average (23%) for the same week over the past five seasons. Influenza A and B continued to co-circulate, with an increased proportion of influenza B detections.
- In the United Kingdom (week ending Jan 26, 2020), influenza activity continued to decrease with several indicators below baseline levels. The positivity of influenza detection continued to decrease from 9.3% to 6.9%, which is now below the baseline threshold of 9.7%. The most common influenza viruses detected were influenza A(H3) in this season.
- In Europe (week ending Jan 26, 2020), influenza activity continued to increase. 47% of the sentinel specimens were tested positive for influenza viruses. Both influenza virus types A and B were co-circulating with a higher proportion (69%) of type A viruses detected. The distribution of viruses detected varied between countries and areas.
- In Mainland China (week ending Jan 19, 2020), both northern and southern provinces had entered the winter influenza seasons, but the influenza activity has decreased in the past two weeks. Influenza A(H3N2) and influenza B(Victoria) viruses were predominant.
- In Macau (week ending Jan 25, 2020), the overall numbers of ILI cases has been decreasing. The predominating viruses were influenza A(H1).
- In Taiwan (week ending Jan 25, 2020), influenza activity remained at a high level. Recently influenza A(H1N1) was the predominant strain in the community.
- In Japan (week ending Jan 26, 2020), the average number of reported ILI cases per sentinel site increased to 18.00 from 16.73 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 (90%), followed by influenza B (9%) and influenza A(H3) (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 commonly 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](#).