Communicable Diseases WATCH

衞生防護中心 Centre for Health Protection
衞生署 Department of Health

FEATURE IN FOCUS

Updated Situation of Seasonal Influenza in Hong Kong

Reported by Ms Vera CHOW, Scientific Officer, Respiratory Disease Office, Surveillance and Epidemiology Branch, CHP.

Overview

The seasonal influenza activity in Hong Kong this year was different from the typical epidemiological patterns in the past few years. After a mild increase in seasonal influenza activity during February and March 2017, the influenza activity returned to the baseline in April. However, it started to increase and exceeded the baseline in May, indicating the arrival of the summer influenza season. This season arrived earlier than the traditional summer influenza seasons that usually occurred between July and September in the past. The influenza activity continued to increase steadily in June and exceeded the peak level recorded during the winter season this year. It further increased sharply from late June to mid-July and reached a very high level with some of the surveillance parameters exceeding the highest levels recorded in recent years. However, the surveillance data in the past two weeks (July 16 to 29) showed signs of decrease in the activity. Based on past epidemiological patterns, the Centre for Health Protection (CHP) of the Department of Health anticipates that the influenza activity will remain high in the coming weeks.

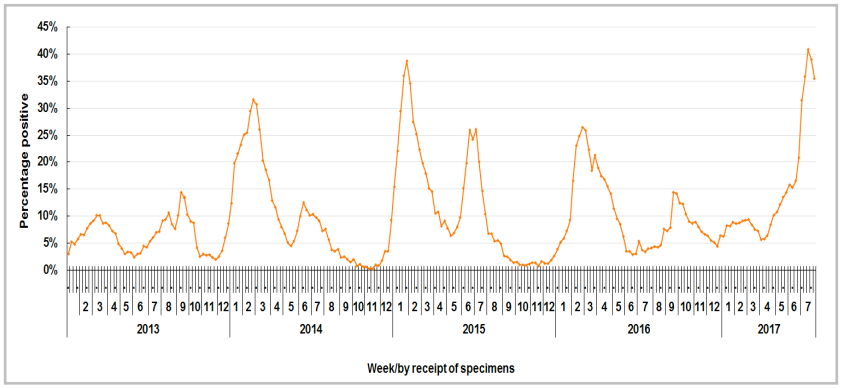

Figure 1 - Percentage of respiratory specimens tested positive for influenza viruses, 2013-2017.

Influenza A(H3N2) has predominated in this season, which is known to cause more severe diseases in the elderly as compared with other influenza types. The current summer season was similar to the situation of the winter season in early 2015 which was also predominated by influenza A(H3N2). In both seasons, large numbers of severe influenza cases affecting elderly patients were recorded.

Laboratory surveillance

The weekly percentage tested positive for seasonal influenza viruses among respiratory specimens received by the Public Health Laboratory Services Branch (PHLSB) of CHP steadily rose from 10.75% in the week ending May 6 to 20.76% in that ending June 24, and then sharply increased over the next three weeks to the peak of 40.86% in the week ending July 15 (Figure 1). This peak exceeded the previous maximum level recorded since 2014 (38.71% during the 2015 winter season). It then decreased to 39.00% and 35.49% in the past two weeks.

Influenza A(H3N2) virus, which predominated in the 2017 winter season and the 2016 summer season, continued to be the predominating virus in this season. From May 7 to July 29, the proportion of influenza A(H3N2) detected by PHLSB was 88.8%, whereas for influenza A(H1N1)pdm09, influenza B and influenza C viruses, the proportions were 6.8%, 3.5% and 0.9% respectively. The recently circulating influenza A(H3N2) viruses remained antigenically similar to the strain contained in the seasonal influenza vaccine recommended for the 2016/17 Northern Hemisphere season so far.

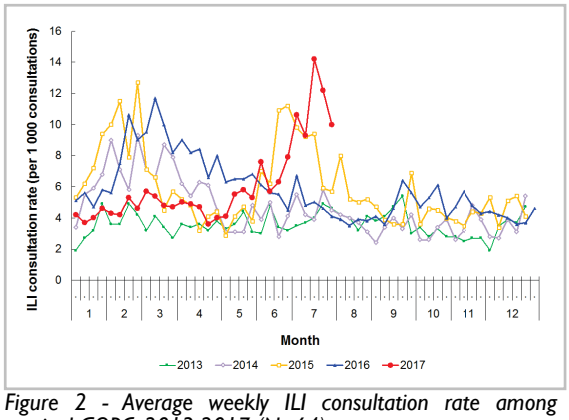

Figure 2 - Average weekly ILI consultation rate among sentinel GOPC, 2013-2017 (N=64).

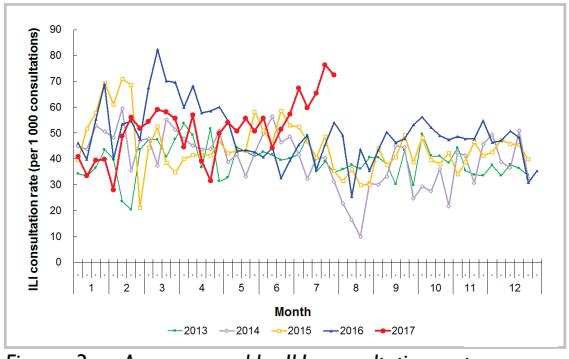

Figure 3 - Average weekly ILI consultation rate among sentinel private doctors, 2013-2017 (N=55).

Influenza-like illness (ILI) surveillance among sentinel general out-patient clinics (GOPC) and private doctors

The average weekly ILI consultation rate among sentinel GOPC reached the peak level of 14.2 (per 1 000 consultations) in the week ending July 15, which was the highest level recorded after the 2009 pandemic (higher than 12.7 and 11.7 recorded in the 2015 and 2016 winter seasons respectively) (Figure 2). The rate among sentinel private doctors reached the peak of 76.4 (per 1 000 consultations) in the week ending July 22, which was similar to the peak of 71.0 and 82.3 recorded in the 2015 and 2016 winter seasons respectively (Figure 3). In summary, the ILI consultation rates in out-patient settings have reached a very high level in this season.

ILI syndromic surveillance in Accident and Emergency Departments (AED) in public hospitals

According to the ILI syndromic surveillance in AED in public hospitals, the average weekly ILI attendance rate reached a high level ranging from 232.2 to 233.1 per 1 000 coded cases in the past three weeks (July 9 to 29) (Figure 4). Higher rates were recorded in winter seasons in previous years: 2008 (261.4), 2011 (339.5), 2014 (254.1), 2015 (259.0) and 2016 (295.0). In summary, the ILI attendance rate in AED reached a high level in this season but was lower than the peak levels recorded in previous years.

Outbreaks of ILI in schools/institutions

The weekly number of institutional ILI outbreaks reported to CHP reached a high level in July, ranging between 41 and 44 during the 4-week period from June 25 to July 22 (Figure 5). The number of ILI outbreaks slightly decreased to 39 last week. The peak level was lower than that recorded during the 2015 and 2016 winter seasons (95 and 90 outbreaks per week respectively). During the period between May 7 and July 29, a total of 364 ILI outbreaks were recorded as compared to 403 and 374 recorded in the same duration in the 2015 and 2016 winter seasons respectively. In this season, the majority of outbreaks occurred in residential care homes for the elderly (RCHE) (47.0%), followed by primary schools (PS) (20.1%), kindergartens/child care centres (KG/CCC) (15.9%), secondary schools (SS) (4.9%) and residential care homes for the disabled (RCHD) (4.9%). This was similar to the situation in the 2015 winter season predominated by influenza A(H3N2) where most outbreaks occurred in RCHE, but unlike the situation in the 2016 winter season predominated by influenza A(H1N1)pdm09 where most outbreaks occurred in schools (Figure 6).

Influenza-associated hospital admissions

In public hospitals, the weekly admission rates with principal diagnosis of influenza have reached very high levels in mid-July (Figure 7). In this season, the peak admission rate was highest among children aged below five years (10.02 admitted cases per 10 000 population in the week ending July 15), followed by elderly aged 65 years or above (6.59 in the week ending July 15) and children aged five to nine years (2.47 in the week ending July 1). The peak rates among children aged below five years and elderly aged 65 years or above exceeded the previous highest rates recorded after the 2009 pandemic (6.73 among children aged below five years in the 2016 winter season and 5.34 among elderly aged 65 years or above in the 2015 winter season).

Although the influenza-associated admission rates were high, so far there was no observed increase in the proportion of death among the hospitalised influenza cases. Among the cases admitted to public hospitals with laboratory

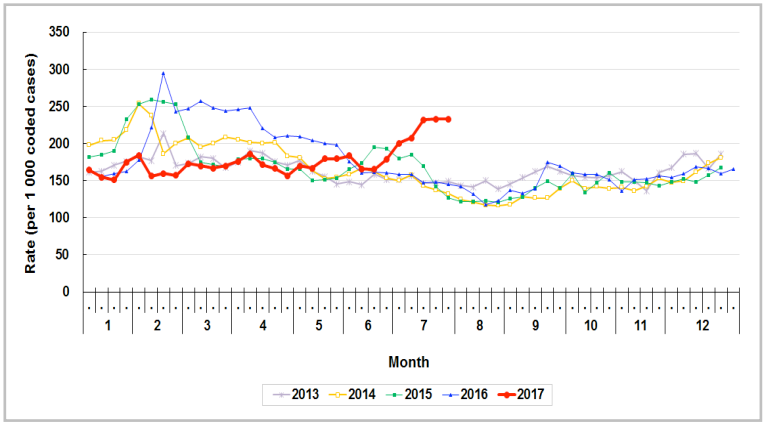

Figure 4 - Average ILI attendance rate at AED by week, 2013-2017 (N=18).

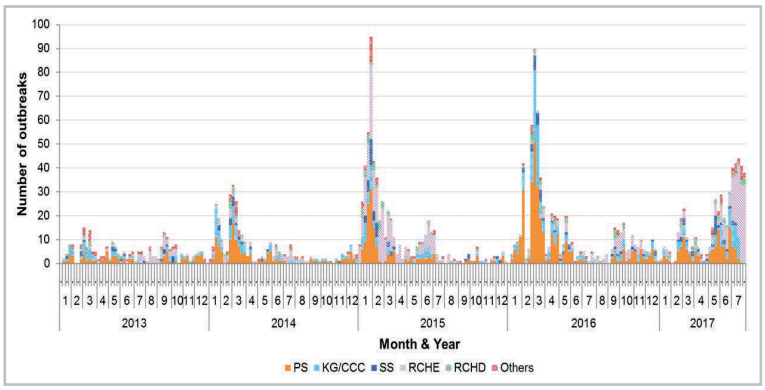

Figure 5 - Weekly number of ILI outbreaks in schools and institutions, 2013-2017.

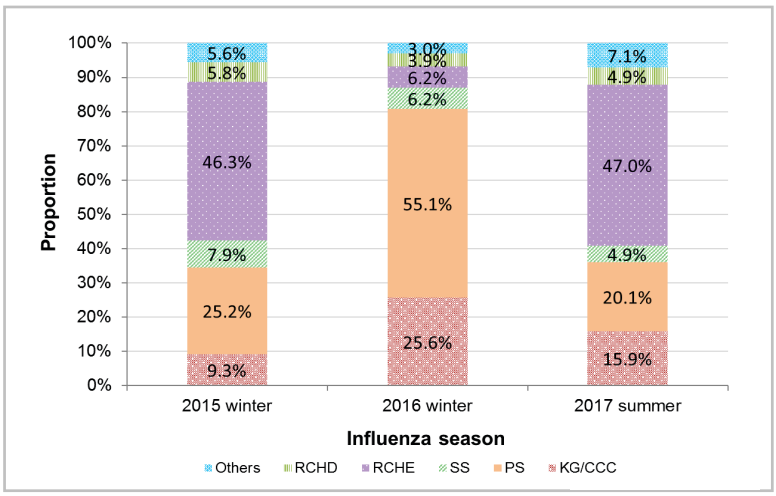

Figure 6 - Distribution of the institutional ILI outbreaks recorded during the 2015 winter season, 2016 winter season and the current season (as of July 29, 2017).

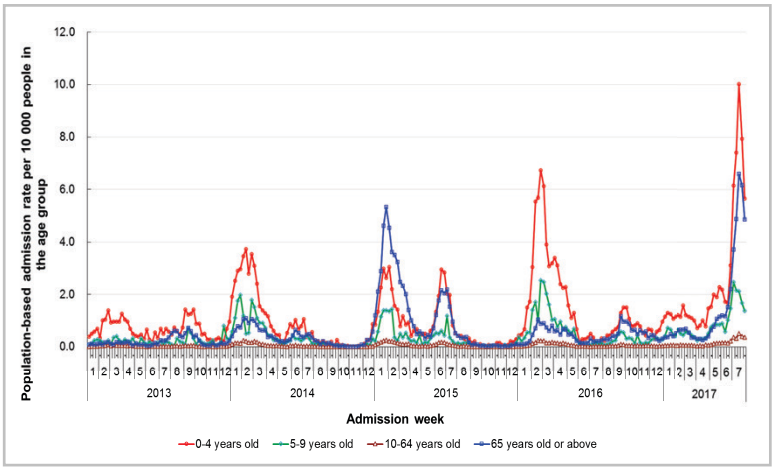

Figure 7 - Weekly admission rates with principal diagnosis of influenza in public hospitals by age groups, 2013-2017.

confirmation of influenza, the proportion of deaths was 2.1%, which was within the ranged observed in previous seasons (Table 1).

Severe influenza cases

CHP has collaborated with Hospital Authority and private hospitals to reactivate the enhanced surveillance for influenza-associated admissions to intensive care unit (ICU) or deaths among patients aged 18 or above since May 5. From May 5 to August 2, a total of 431 ICU admissions or deaths (including 304 deaths) with laboratory diagnosis of influenza have been recorded among adult patients. Their ages ranged from 18 to 105 years (median: 81 years). The majority (77.7%) of the severe cases were elderly aged 65 years or above (Table 2). The cumulative incidence and mortality rates were much higher among persons aged 65 years or above than persons under 65 years. About 80% of the severe cases were known to have pre-existing chronic diseases.

Separately, 19 paediatric cases of influenza-associated complication/death (including three fatal cases) were reported to CHP among people aged below 18 years from May 5 to August 2. Their ages ranged from six months to 15 years (median: two years). Six cases (31.6%) had pre-existing chronic diseases. Seventeen cases (89.5%) had not received the seasonal influenza vaccine for the 2016/17 season. In 2017, a total of 27 cases (including four deaths) have been recorded so far.

In this season, the number of severe cases reported reached the peak around mid-July and then started to decrease. An average of 11.3 severe cases among all ages per day was recorded during the 7-day period between July 12 and July 18, and the daily average slightly decreased to 10.1 cases in the recent 7-day period (July 27 to August 2).

The numbers of severe cases and deaths among adult patients recorded in this season so far were larger than those recorded in the same duration in the 2016 winter season but smaller than those recorded in the 2015 winter season (Table 3). On the other hand, the numbers of severe cases and deaths among paediatric patients recorded in this season were similar to the ranges recorded in the same duration in the previous two winter seasons.

Discussion

The local seasonal influenza activity has been atypical in 2017. The winter season was mild with low level of influenza circulation yet the influenza activity in the summer season was much higher than that recorded in the winter season in 2017. It was also higher than previous summer seasons. Similar to Hong Kong, sharp increases in influenza activity have also been recorded in June and July 2017 in Guangdong and Macau.

Several factors might account for the severity of this season. This season was predominated by influenza A(H3N2) virus, which is notoriously known to affect the elderly population. The aging population in Hong Kong has resulted in an increasing number of frail elderly who are more prone to influenza infection and its complications. There was a net increase of 183 300 persons aged 65 years or above between 2012 and 2016. The annual increase in population size of 65 years or above was more than 4% in the past five years in Hong Kong. Furthermore, the immunity induced by seasonal influenza vaccination in late 2016 has been waning in the elderly population, making them susceptible to influenza infection in the current summer season.

Table 1 - Admissions and deaths with laboratory confirmation of influenza in public hospitals.

Season (predominating virus; duration)	Cumulative number of influenza admissions	Cumulative number of influenza deaths	Percentage of deaths among admitted influenza cases
2017 summer (H3N2; May 5 - August 2)	14 713 (90 days so far)	306	2.1%
2016 summer (H3N2; September 23 - October 27)	1 597 (35 days)	40	2.5%
2016 winter (H1N1pdm09; January 29 - May 20)	11 159 (113 days)	212	1.9%
2015 summer (H3N2; June 12 - August 7)	4 129 (57 days)	135	3.3%

Table 2 - Age distribution and cumulative incidences of severe cases and deaths recorded from May 5 to August 2 among adult patients.

Age group	Cases [including ICU admissions and deaths]	Cumulative incidence (per 100 000 population)	Deaths	Cumulative mortality (per 100 000 population)
18 - 49	21 (4.9%)	0.62	6 (2.0%)	0.18
50 - 64	75 (17.4%)	4.26	25 (8.2%)	1.42
≥ 65	335 (77.7%)	28.80	273 (89.8%)	23.47
Total	431 (100%)	6.82	304 (100%)	4.81

Table 3 - Numbers of severe cases recorded in the first thirteen weeks of surveillance during the 2015 winter season, 2016 winter season and the current summer season.

Number of cases	2015 winter (predominated by H3N2)	2016 winter (predominated by H1N1pdm09)	2017 summer (predominated by H3N2)
Adult severe cases (including deaths)	576	352	395
Adult death cases	442	171	279
Paediatric cases of influenza-associated complication/death	18	23	19
Paediatric cases of influenza-associated death	1	3	3

The latest surveillance data suggested that the peak of this season has already passed though the influenza activity still remained at a high level. In the past three winter seasons (2014, 2015 and 2016) with high influenza activity recorded, the duration ranged from 16 to 17 weeks. It took 10 to 13 weeks for the influenza activity to decrease from the peak level back to the baseline. So far, about 13 weeks have passed in this season. It is foreseen that it will last for some time before the influenza activity returns to the baseline. CHP will closely monitor the situation.

Hong Kong Strategy and Action Plan on Antimicrobial Resistance

Reported by Dr Jonathan NGAI, Medical and Health Officer, and Dr Ken NG, Consultant, Infection Control Branch, CHP.

Antimicrobial resistance (AMR) occurs when microorganisms change in ways that render the medications used to cure the infections they cause ineffective. AMR is a global public health concern that results in reduced efficacy of antimicrobials, making the treatment of patients difficult, costly or even impossible.

The Government of the Hong Kong Special Administrative Region (the Administration) has all along recognised the growing problem of AMR. Different sectors have been implementing control measures with a common view to contain its spread. In recognition of the major threat posed by AMR, the Administration announced in the 2016 Policy Address the setting up of a High Level Steering Committee on Antimicrobial Resistance (HLSC) to formulate strategies in collaboration with the relevant sectors to tackle the threat.

The Government launched the Hong Kong Strategy and Action Plan on Antimicrobial Resistance (2017-2022) in July 2017 to outline key areas, objectives and actions to contain the growing threat of AMR in Hong Kong.

Endorsed by the HLSC chaired by the Secretary for Food and Health, the Action Plan adopts a "One Health" approach as recommended by international health agencies and focuses on resistance in bacteria that present an urgent and serious threat to public health. The rising threat of AMR should be addressed by a comprehensive framework taking a multi-sectoral and whole-of-society approach as resistant bacteria arising either in humans or animals may spread from one sector to another.

The Action Plan identifies six key areas to slow the emergence of AMR and prevent its spread. After consulting stakeholders across sectors, disciplines and organisations, and soliciting their support for implementation, a total of 19 objectives with detailed actions are recommended as follows:

1. Strengthen knowledge through surveillance and research

- Set up an AMR surveillance system under "One Health" for Hong Kong;
- Build laboratory capacity to support surveillance activities in both human and animal sectors; and
- Monitor antimicrobial use in humans and animals.

2. Optimise use of antimicrobials in humans and animals

- Strengthen regulation on over-the-counter purchase of prescription-only antimicrobials;
- Implement and enhance training in prescribing antimicrobials through Antibiotic Stewardship Programme in the human health sector;
- Monitor compliance with antibiotic prescription guidelines of human health practitioners; and
- Ensure proper use of antimicrobials in animals.

3. Reduce incidence of infection through effective sanitation, hygiene and preventive measures

- Strengthen infection prevention and control measures in healthcare settings;
- Strengthen infection control training for healthcare workers;
- Develop and strengthen infection prevention and control programmes in veterinary settings and along the food supply chain; and
- Enhance vaccination uptake.

4. Improve awareness and understanding of AMR through effective communication, education and training

- Raise awareness of AMR among the general public, students and the target population;
- Engage patients in adopting infection control measures and proper use of antibiotics; and
- Include AMR and related topics in school curricula and in the continuous training of human health and veterinary professionals.

5. Promote research on AMR

- Promote research on innovative technology and medical science;
- Promote research on behavioural science and psychology; and
- Promote research on health and economic burden.

6. Strengthen partnerships and foster engagement of relevant stakeholders

- Strengthen international partnerships and regional collaboration; and
- Inform public policy and facilitate stakeholder engagement.

The Action Plan provides guidance not only for public health, healthcare and veterinary partners, but also to co-ordinate efforts from all sectors of the community.

The full text of the Action Plan and health education materials on AMR have been uploaded to the thematic website on AMR of the Centre for Health Protection of the Department of Health (http://chp.gov.hk/en/view_content/47850.html)