FEATURE IN FOCUS

Summary of the 2019/20 winter influenza season in Hong Kong

Reported by Ms Vera CHOW, Scientific Officer, Respiratory Disease Section, Surveillance Division, Communicable Disease Branch, CHP.

The 2019/20 winter influenza season in Hong Kong arrived in the second week of 2020. The overall seasonal influenza activity increased above the baseline level in January and peaked in the last week of the month. It then rapidly returned to the baseline level in mid-February. This winter influenza season spanned for five weeks, which was much shorter than the previous two winter seasons (12 weeks in 2017/18 winter and 14 weeks in 2018/19 winter seasons).

Laboratory surveillance

The laboratory surveillance data of the Centre for Health Protection (CHP) of the Department of Health showed that the percentage of respiratory specimens tested positive for influenza viruses by the Public Health Laboratory Services Branch (PHLSB) reached the peak of about 19% in late January (Figure 1). In this season, the majority of positive influenza detections (about 80%) were influenza A(H1), followed by influenza A(H3) (16%), while influenza B remained low throughout the season (4%).

Antigenic characterisation of influenza viruses performed by PHLSB revealed that the majority of influenza A(H1) and influenza B viruses detected between late November 2019 to March 2020 were antigenically similar to the vaccine strains contained in the 2019-20 Northern Hemisphere seasonal influenza vaccine (SIV) used in Hong Kong. However, the majority (85%) of influenza A(H3) viruses detected were antigenically dissimilar from the H3 vaccine strain. The results were largely similar to the findings in Mainland China and some overseas countries such as the United States and Canada.

Figure 1 - Percentage of respiratory specimens tested positive for influenza viruses, 2016 to 2020.

Figure 2 - Weekly admission rates with principal diagnosis of influenza in public hospitals, 2016 to 2020.
Influenza-associated hospital admission rates in public hospitals

The influenza-associated hospital admission rates in public hospitals reached the peak of 0.93 admitted cases per 10,000 population in late January, and then returned to a low level in early February (Figure 2). The peak rate was lower than that recorded in major influenza seasons from 2017 to 2019 (ranging from 1.50 to 1.91). The peak weekly rate was highest among young children aged ≤5 years, followed by elderly aged ≥65 years and children aged 6-11 years (Table 1). For the assessment of influenza-associated admission rates by the moving epidemic method (MEM)*, the highest weekly rates among young children aged ≤5 years, children aged 6-11 years and elderly aged ≥65 years were all at the medium intensity level.

Influenza-like illness (ILI) outbreaks in schools and institutions

The number of institutional outbreaks of influenza-like illness (ILI) increased in January with the majority occurring in kindergartens/child care centres (KG/CCC) and primary schools (Figure 3). It has decreased markedly since the Lunar New Year holiday in late January and the subsequent territory-wide school closure as a control measure for coronavirus disease 2019 (COVID-19). The last ILI outbreak was recorded on February 11 involving a residential care home for the elderly (RCHE). A total of 153 ILI outbreaks were recorded in this season, which was lower than the range of 401 to 862 outbreaks recorded during major influenza seasons in the past five years. The most affected types of institutions were KG/CCC and primary schools, which constituted 39.9% and 24.8% of all reported outbreaks respectively (Table 2). For the assessment of ILI outbreaks by MEM, the highest weekly numbers in KG/CCC and primary schools were at the medium intensity level while that in RCHE was at the low intensity level.

Severe influenza cases

CHP has collaborated with the Hospital Authority and private hospitals to monitor intensive care unit (ICU) admissions and deaths with laboratory confirmation of influenza among adult patients (≥18 years). For surveillance purpose, the cases refer to laboratory-confirmed influenza patients who require ICU admission or die within the same admission of influenza infection. It should be noted that their causes of ICU admission or death may be due to other acute medical conditions or underlying diseases.

For the surveillance of severe influenza cases requiring ICU admission or death among adult patients, a total 169 cases (including 103 deaths) were recorded in this season. The number of adult severe influenza cases was much lower than those recorded in major seasons in the past five years (ranging from 409 to 647 cases). About 66% and 22% of the adult severe cases affected persons aged ≥65 years and 50-64 years respectively. Most of the deaths (81%) affected elderly ≥65 years. About 78% of the adult severe cases had pre-existing chronic medical diseases. Only 25% of the cases were known to have received the SIV for the 2019/20 season.

For paediatric cases of influenza-associated severe complications, five cases were recorded in this season with no deaths recorded. The number of cases was lower than the range of 18 to 27 cases recorded in major influenza seasons in the past five years. The last case was reported on February 3. The ages of the five cases ranged from 26 months to eight years with a median of five years. Three and two cases were aged 0-5 and 6-11 years respectively. Only one of the five cases had received the SIV for the 2019/20 season.

In summary, the 2019/20 winter influenza season was predominated by influenza A(H1) which constituted about 80% of all influenza detections in this season. This season only spanned for five weeks, which was much shorter than the winter seasons in previous two years. The local influenza activity dramatically declined in February with decreases in the numbers of influenza detections, institutional ILI outbreaks and influenza-associated hospitalisations. Overall, it was a mild season as reflected by the various surveillance parameters. This is likely related to the intensive prevention measures adopted by the whole community for COVID-19, such as hand hygiene, mask wearing, social distancing, etc.

**NEWS IN BRIEF**

**Four sporadic cases of psittacosis**

The Centre for Health Protection (CHP) of the Department of Health record four sporadic cases of psittacosis from January to March 2020.

The first case affected a 77-year-old man with underlying illnesses. He presented with fever, cough, headache, myalgia and shortness of breath on January 14 and was admitted to a public hospital on January 17. Chest X-ray showed right upper zone haziness. The clinical diagnosis was chest infection and he was treated with antibiotics. He remained stable and was discharged on January 23. The nasopharyngeal aspirate collected on January 17 and 19 were both tested positive for *Chlamydia psittaci* DNA by polymerase chain reaction (PCR). He travelled to Shenzhen for one day on January 13. He did not keep any pets at home. He did not recall any contact with birds or bird droppings during the incubation period. His home contact remained asymptomatic.

The second case affected a 70-year-old man with underlying illnesses. He presented with fever, cough and myalgia on February 15 and was admitted to a public hospital on February 20. Chest X-ray showed right lower zone haziness. The clinical diagnosis was pneumonia and he was treated with antibiotics. He remained stable and was discharged on February 25. The sputum collected on February 21 tested positive for *Chlamydia psittaci* DNA by PCR. He did not keep any pets at home. He did not recall history of contact with birds or bird droppings during the incubation period, nor any history of travel. His home contact remained asymptomatic.

The third case affected a 61-year-old man with underlying illness. He presented with headache and cough on February 7 and was admitted to a public hospital on February 15. Chest X-ray showed consolidation of the left lower zone and right upper zone. The clinical diagnosis was pneumonia. His condition deteriorated and he developed respiratory failure. He was transferred to the intensive care unit (ICU) and intubated. His condition improved with antibiotic treatment and he was discharged on February 29. Respiratory specimens collected on February 15 tested positive for *Chlamydia psittaci* DNA. During the incubation period, there was no history of travel. The patient had bought a pair of cockatiel birds on January 24. One of the birds passed away on February 3, before his symptom onset. CHP conducted home visit jointly with the Agriculture, Fisheries and Conservation Department (AFCD) on February 21 and specimens were taken from the remaining bird and the bird cage, which were positive for *Chlamydia psittaci* DNA. The family members voluntarily surrendered the bird to AFCD. His home contacts remained asymptomatic. Health advice on environmental hygiene was given to the family.

The fourth case affected a 79-year-old man with underlying illness, who lived in Dongguan with his family. He presented with fever and shortness of breath on December 16, 2019 while in Dongguan and was admitted to a hospital in Dongguan on the same day and was intubated. Chest X-ray showed bilateral diffuse infiltrates. Blood and broncho-alveolar lavage collected by the hospital in Dongguan on December 20 tested positive for *Chlamydia psittaci*. He was transferred to Hong Kong on April 3, 2020 and was admitted to the ICU of a public hospital in Hong Kong for further management. Chest X-ray taken in Hong Kong revealed left lower zone consolidation with pleural effusion. He was treated with antibiotics. His condition gradually improved and he was transferred to a convalescence hospital. He did not report any history of contact with birds or their excreta during the incubation period. His home contacts were asymptomatic.

**A sporadic confirmed case of brucellosis**

On January 20, 2020, CHP recorded a confirmed case of brucellosis affecting a 21-year-old pregnant woman with good past health. She presented with vaginal bleeding with abdominal pain on January 13 at her second trimester pregnancy and was admitted to a public hospital on the same day and was diagnosed to have miscarriage. She was discharged on January 16, and culture of the abortus swab collected on January 13 was subsequently confirmed on January 19 to grow *Brucella melitensis*. The clinical diagnosis was brucellosis and she was arranged for admission on January 20. She was treated with antibiotics and her condition was stable. She reported no contact with animal carcasses or their internal organs. She had no recent travel history, and she did not recall history of consuming raw or undercooked animal products. Her home contacts were asymptomatic.
Four sporadic cases of necrotizing fasciitis caused by Vibrio vulnificus infection

CHP recorded four sporadic cases of necrotizing fasciitis caused by Vibrio vulnificus infection from January to May 2020, all of them had underlying illnesses.

The first case affected a 77-year-old male who presented with right upper limb swelling and blisters over the right shin on January 25 and was admitted to a public hospital on January 26. The clinical diagnosis was necrotizing fasciitis. He was treated with antibiotics, surgical debridement and right lower limb amputation and he required ICU admission. Blood and necrotic tissue, collected on January 27 and January 29 respectively, grew Vibrio vulnificus. His condition improved and he was discharged on April 9. During the incubation period, there was no history of travel. He recalled handling crabs and shrimps on January 24 for preparing meal at home but did not recall history of injury or wounds.

The second case affected a 52-year-old man who presented with fever and pain over the left ankle, both elbows and both knees on March 31 and was admitted to a public hospital on April 2. The diagnosis was necrotizing fasciitis. He was treated with antibiotics, and underwent bilateral above knee amputation and surgical debridement, and post-operatively required ICU care. Blood and right upper limb deep muscle fascia collected on April 2 grew Vibrio vulnificus. The patient developed acute renal failure and dehydration after surgery. His condition deteriorated and he finally succumbed on April 7. According to information from the patient’s family, he had history of contact with raw crabs and shrimps which he had bought from the wet market on March 30, but there was no history of injury or wounds.

The third case affected a 75-year-old male. He sustained a fall on May 4 with head injury and left wrist swelling. He attended the Accident and Emergency Department (AED) of a public hospital on May 5 due to deterioration in general conditions. He was found to have shortness of breath and cyanosis, and was intubated at the AED. He passed away on the same day. His blood specimen collected on May 5 grew Vibrio vulnificus. According to his family, he had visited a wet market on May 3 but there was no known history of contact with seafood or injury at the market.

The fourth case was a 95-year-old female who presented with fever, left middle finger swelling and blister on May 9 and was admitted to a public hospital on May 11. The clinical diagnosis was necrotizing fasciitis. She was treated with antibiotics and surgical debridement. Pus and tissue of her left middle finger collected on May 11 tested positive for Vibrio vulnificus. Her condition was stable. She reported history of finger injury while handling raw fish at home on May 8.

All four cases had no recent travel history and their home contacts were asymptomatic. Investigation so far did not identify epidemiological linkage among the four cases.

Four probable cases of sporadic Creutzfeldt-Jakob disease

CHP recorded four probable cases of sporadic Creutzfeldt-Jakob disease (CJD) from February to May 2020.

The first case affected a 74-year-old woman with history of underlying illness. She presented with progressive memory loss and slowness in speech in August 2019 and was admitted to a public hospital on October 22, 2019. Upon admission, she was found to have progressive dementia, decrease in speech and walking disability. Findings of magnetic resonance imaging of the brain and electroencephalography were compatible with CJD. She passed away on December 27, 2019.

The second case affected a 63-year-old man with good past health. He presented with akinesia, akinetic mutism and unsteady gait in end of February 2020. He later developed irrelevant response with incoherent speech and confusion, and was admitted to a private hospital on March 5 due to deterioration in cognition. He was found to have rapidly progressive dementia and myoclonus. Findings of the electroencephalography was consistent with CJD. He was discharged on March 9.

The third case affected a 75-year-old woman with underlying illness. She presented with rapidly progressive dementia with occasional confused speech, disorientation and unsteady gait in February 2020. She was admitted to a public hospital on April 7. Physical examination showed rigidity, hyperreflexia and cerebellar signs. Findings of the electroencephalography was consistent with CJD. She was discharged on April 23.

The fourth case affected an 81-year-old man with history of underlying illness. He presented with deterioration in general condition in March 2020 and was admitted to a public hospital on April 28, 2020. Upon admission, he was found to have progressive dementia, decrease in speech and myoclonus. Electroencephalography findings were compatible with CJD.

All four cases were classified as probable cases of sporadic CJD. They had no known family history of CJD and no risk factors for iatrogenic or variant CJD were identified. No epidemiological linkage was identified among the four cases.
Eight sporadic cases of listeriosis

CHP recorded eight sporadic cases of listeriosis from March to May 2020, three affected pregnant women and four had underlying illnesses.

The first case affected a 27-year-old pregnant woman with good past health. She presented with fever on February 24 and later developed vaginal bleeding, abdominal pain and diarrhoea. She was admitted to a public hospital on March 1 and was found to have miscarriage at 17 weeks of gestation. The blood and high vaginal swab collected on March 1, and the endocervical swab collected on March 2, grew *Listeria monocytogenes*. She was treated with antibiotics. Her condition was stable and she was discharged on April 2. She recalled consuming cucumber salad at home during the incubation period but was unable to provide further details. She had no recent travel history and her household contacts remained asymptomatic.

The second case affected a 37-year-old pregnant woman with no underlying illness. She presented with fever during first trimester pregnancy on March 26. She was admitted to a public hospital on April 3. The blood specimen collected on April 3 yielded *Listeria monocytogenes*. The clinical diagnosis was listeriosis and silent miscarriage. The patient was treated with antibiotics. Her condition improved and she was discharged on April 18. She could not recall history of consuming any high risk food items during the incubation period, and she had no recent travel.

The third case affected a 35-year-old pregnant woman with good past health. She presented with fever, chills and vomiting on April 5 and was admitted to a public hospital on April 10 at 14 weeks gestation. She developed lower abdominal pain and vaginal bleeding after admission, and subsequently passed out the fetus spontaneously. The blood culture collected on April 11 yielded *Listeria monocytogenes*. The diagnosis was septic abortion. She was treated with antibiotics. Her condition was stable and she was discharged on April 27. She travelled to Guangdong from January 24 to 29. She had history of consuming salad and sushi in local restaurants but she could not recall the details. Her household contacts remained asymptomatic.

The fourth case affected a 44-year-old man with underlying illnesses. He presented with fever, diarrhoea and generalised weakness on April 1 and was admitted to a public hospital on April 3. On admission, he was found to have jaundice and generalised abdominal discomfort and was disoriented. The blood culture collected on April 3 yielded *Listeria monocytogenes*. He was treated with antibiotics. His condition deteriorated and he passed away on April 4. According to the patient’s wife, he had no recent travel history nor history of consuming high risk food during the incubation period. His home contacts were asymptomatic.

The fifth case affected a 42-year-old woman with underlying illnesses. She presented with shortness of breath on April 6 and was admitted to a public hospital on April 8. Chest X-ray showed bilateral pleural effusion. The pleural fluid collected on April 9 grew *Listeria monocytogenes*. She was treated with antibiotics and bilateral pleural tapping. Her condition improved gradually and she was discharged on April 11. She had history of consuming salad with raw vegetables, sashimi, smoked seafood and pre-cooked meat in various restaurants but she was unable to provide further details. She had no travel history during the incubation period. Her household contacts remained asymptomatic.

The sixth case was a 93-year-old woman with underlying illnesses, a bedbound resident at an elderly home. She was admitted to a public hospital on April 5 due to fever, abdominal pain and distension, shortness of breath and chest pain. The blood culture collected on April 6 yielded *Listeria monocytogenes*. She was treated with antibiotics. She remained stable and was discharged on April 28. She had no recent travel and did not recall history of consuming high risk food during the incubation period. Environmental investigation at the elderly home was negative for *Listeria monocytogenes*.

The seventh case was a 94-year-old woman with underlying illnesses. She presented with fever, shortness of breath and cough since March 24. She was admitted to a public hospital on March 25. The blood culture collected on April 26 yielded *Listeria monocytogenes*. She was treated with antibiotics. Her condition deteriorated and she passed away on April 29. She had no recent travel and there was no history of consuming high risk food during the incubation period.

The eighth case was a 51-year-old man with good past health. He presented with diarrhoea on April 18 and developed fever on April 21. He was admitted to a public hospital on April 21. The blood specimen collected on April 29 grew *Listeria monocytogenes*. He was treated with antibiotics. His condition was stable. He was a fishmonger and had history of consuming self-preparing sashimi during the incubation period. He had no recent travel history and his household contacts remained asymptomatic.

So far, no epidemiological linkage has been identified among the eight cases of listeriosis.
A sporadic case of leptospirosis

On April 16, 2020, CHP recorded a sporadic case of leptospirosis, affecting a 34-year-old man with underlying illness. He presented with fever and bilateral leg pain in late March, and was admitted to a public hospital on April 1. He developed pulmonary haemorrhage and gastrointestinal bleeding after admission. He was transferred to ICU and required intubation. He was treated with antibiotics and his condition subsequently improved. He was discharged on April 23. Paired sera taken on April 2 and 8 showed more than four-fold rise in the antibody titres against *Leptospira* by microscopic agglutination test. He denied history of water activities or other high risk activities during the incubation period, and indicated that he did not have history of rodent or animal bites or direct contact with rodent or their excreta. His home contacts remained asymptomatic.

CA-MRSA cases in April 2020

In April 2020, CHP recorded a total of 47 cases of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infection, affecting 28 males and 19 females with ages ranging from eight months to 84 years (median: 37 years). Among them, there were 41 Chinese, 3 Caucasian, 2 Pakistani, and 1 Filipino.

Forty-six cases presented with uncomplicated skin and soft tissue infections while the remaining case had severe CA-MRSA infection. The severe case affected a 33-year-old woman with history of CA-MRSA infection. She presented with fever and low back pain since April 4 and was admitted to a public hospital for management. Her blood specimen collected on April 9 was cultured positive for CA-MRSA. Echocardiogram was performed and showed valvular lesion of the heart. She was diagnosed with CA-MRSA associated infective endocarditis. She was treated with antibiotics and remained in stable condition.

Among the 47 cases, two sporadic cases involved healthcare workers. One case was a nurse working in a public hospital while another was a physiotherapy assistant working in a residential care home for the elderly. Investigation did not reveal any epidemiologically linked cases. Besides, no household clusters were identified in April.

Scarlet fever update (April 1, 2020 – April 30, 2020)

Scarlet fever activity in April remained low. CHP recorded seven cases of scarlet fever in April as compared with four cases in March. The cases recorded in April included five males and two females aged between 11 months and 16 years (median: six years). No institutional clusters or fatal cases were reported in April.