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Communicable Diseases WATCH

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



## FEATURE IN FOCUS

# 2018 Year in Review

*Reported by Surveillance Section, Communicable Disease Division, Surveillance and Epidemiology Branch, CHP.*

## In this issue, we reviewed communicable diseases and issues of public health concern in 2018...

### *Dengue Fever*

In 2018, the Centre for Health Protection (CHP) of the Department of Health recorded a record high number of 163 dengue fever (DF) cases, as compared with a range of 30 to 124 cases per year from 2008 to 2017 (Figure 1). The 163 cases involved 83 males and 80 females, with ages ranging from seven to 84 years (median: 43 years). The most common presenting symptoms included fever (160, 98.2%), headache (121, 74.2%), myalgia (114, 69.9%), rash (71, 43.6%), arthralgia (66, 40.5%) and eye pain (36, 22.1%). One hundred and thirty-two patients (81.0%) required hospitalisation. No severe dengue or fatal case was recorded.

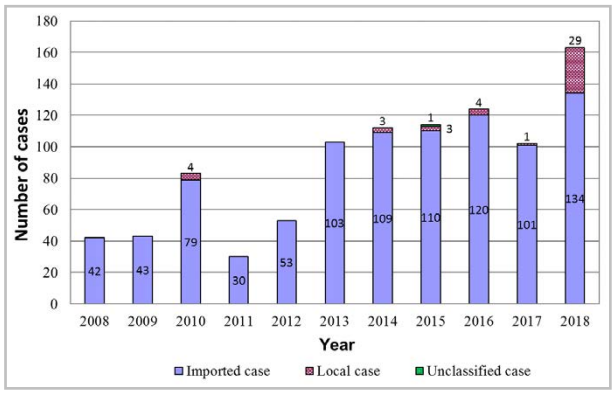


*Figure 1 - Annual number of dengue fever cases from 2008 to 2018.*

Among the 163 cases, 134 (82.2%) cases were classified as imported infections while 29 cases were local infections. The places of infection of the imported cases included Thailand (36), Mainland China (29), the Philippines (23), Cambodia (13), India (7), Indonesia (7), Vietnam (7), Bangladesh (3), Malaysia (3), Maldives (1), Myanmar (1) and Singapore (1). The remaining three imported cases had travelled to multiple countries and areas outside Hong Kong during the incubation period (IP).

A local DF outbreak was recorded in Hong Kong in summer of 2018. From August 14 to September 4, a total of 29 local cases were confirmed, as compared with a range of zero to four local cases recorded per year from 2008 to 2017. Epidemiological investigations revealed that the 29 cases were linked to two separate clusters, one in Lion Rock Park/Wong Tai Sin (19 cases) and the other in Cheung Chau (10 cases). The genetic sequencing results were compatible with the epidemiological findings. With the intensive anti-mosquito efforts by the Government and the community, no local case was recorded after September 4. All patients have recovered.

### *Hand, Foot and Mouth Disease*

In Hong Kong, hand, foot and mouth disease (HFMD) occurs throughout the year with the usual peak season occurring from May to July and a smaller peak from October to December. In 2018, the summer peak of HFMD activity followed the usual epidemiological pattern with the activity starting to increase in early May, peaking in early June and returning to the baseline level in late July. For the winter peak, the HFMD activity started to increase in late September, peaked in late October but remained at an elevated level above the baseline throughout November 2018 to January 2019.

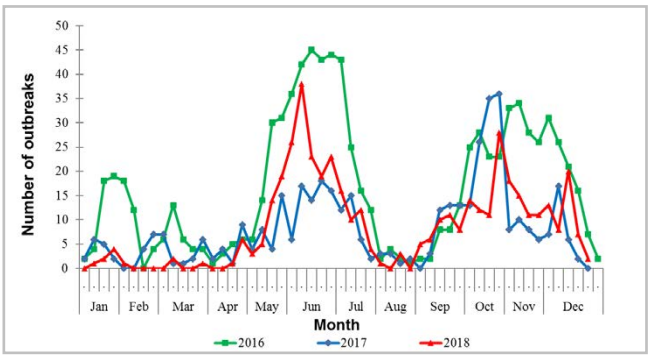


*Figure 2 - Number of HFMD/herpangina institutional outbreaks, 2016 to 2018.*

In 2018, CHP recorded a total of 444 HFMD/herpangina institutional outbreaks, as compared with 875 and 420 outbreaks in 2016 and 2017, respectively (Figure 2). Among the 444 outbreaks, 277 (62.4%) occurred in child care centres/kindergartens, 111 (25.0%) in primary schools, 45 (10.1%) in secondary schools and 11 (2.5%) in other institutions such as education centres, university halls, tertiary institutions and special schools. A total of 2 664 persons were affected with a range of two to 48

(median: four) persons affected in each outbreak. The causative agents were identified in 80 (18.0%) outbreaks, including cosackievirus A16 (25, 31.2%), enterovirus 71 (EV71) (18, 22.5%), cosackievirus A6 (13, 16.2%), cosackievirus A4 (3, 3.7%), cosackievirus A10 (1, 1.3%) and other enteroviruses (20, 25.0%).

A total of 62 cases of EV71 infection were recorded in 2018, as compared with 38 and 49 cases in 2016 and 2017, respectively. The 62 cases involved 35 (56.5%) males and 27 (43.5%) females, with ages ranging from one month to 32 years (median: three years). Four cases developed complications of encephalitis, encephalomyelitis, meningitis and meningoencephalitis, respectively. No fatal case due to EV71 infection was recorded in 2018.

A total of six cases of severe enterovirus infections (SE) other than EV71 and poliovirus were recorded in 2018, as compared with 11 and eight cases in 2016 and 2017, respectively. The six cases involved four males and two females, with ages ranging from one month to five months (median: two months). All SE cases developed the complication of meningitis. No fatal case due to SE was recorded in 2018.

### *Hantavirus infection*

In 2018, CHP recorded two sporadic cases of hantavirus infection, affecting two males aged 29 and 55. Both cases were classified as locally acquired infection. One of them presented with fever, headache, chills and rigor, myalgia, vomiting and diarrhoea in January whereas the other presented with fever and headache in April. Both were found to have acute renal failure and thrombocytopenia. There were rodent activities detected in the vicinity of both patients' workplaces. Both recovered uneventfully and epidemiological investigation did not identify linkage between the two cases.

### *Invasive Meningococcal Infection*

Ten cases of invasive meningococcal infection were recorded by CHP in 2018, as compare with two to eight cases per year between 2009 and 2017 (Figure 3). All cases recorded in 2018 were sporadic cases and the ages of the patients ranged from one month to 86 years (median: 56 years), with four (40%) of them being male. Seven cases were classified as locally acquired infections. Two cases were classified as imported infections with a history of travel to the United Kingdom and the Czech Republic (one case) as well as Mainland China and Macao (one case) during the IP respectively. The place of infection of the remaining case was undetermined since the patient had stayed in Hong Kong and visited Mainland China during the IP.

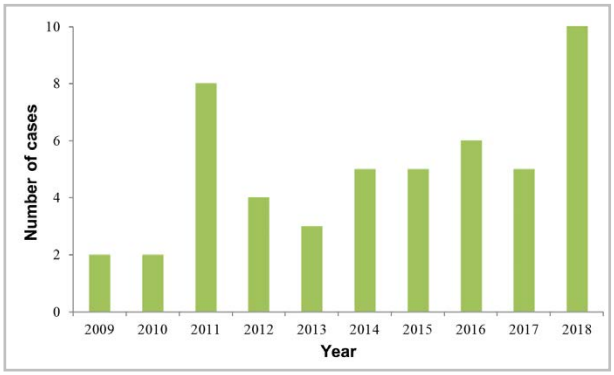


*Figure 3 - Annual number of cases of invasive meningococcal infection in Hong Kong, 2009 to 2018.*

Invasive meningococcal infection mainly results in severe illness including meningitis and sepsis. Among the 10 cases, seven cases were diagnosed with sepsis and three cases had both meningitis and sepsis. Serogroup B meningococcus was identified in five cases, followed by serogroup C (two cases), serogroup Y (two cases) and serogroup W135 (one case). One patient passed away due to meningococcal infection in 2018 and the case of death of one other case was under investigation. No neurological sequelae were recorded among those recovered.

### *Invasive Pneumococcal Disease*

CHP recorded 189 cases of invasive pneumococcal disease (IPD) in 2018, similar to 186 cases recorded in 2017. Under CHP's laboratory surveillance and statutory notification systems[1], the overall annual incidence of IPD ranged from 1.7 to 2.9 per 100 000 population from 2007 to 2018 (Figure 4). Since the introduction of pneumococcal conjugate vaccines (PCV) into the Hong Kong Childhood Immunisation Programme, the incidence of IPD caused by the seven serotypes covered in PCV7/10/13[2] has been on a decline. On the other hand, the incidence of IPD caused by the six serotypes (1, 3, 5, 6A, 7F and 19A) that are covered by PCV13 but not by PCV7 has increased since 2010. There was slight increase in the overall IPD incidence from 2007 to 2018, partly contributed by the wider use of polymerase chain reaction (PCR) as a laboratory confirmation test since 2015. Among the IPD cases recorded in 2018, 50 were paediatric cases (<18 years) while 139 were adult cases (≥18 years). Three of the 50 paediatric cases reported in 2018 were fatal (6.0%), which was similar to the situation in 2017 (three deaths out of 47 paediatric cases, 6.3%). The incidence in 2018 was highest in children aged two to four years (14.5 per 100 000 population), followed by elderly aged 65 years or above (5.9 per 100 000 population) and children aged less than two years (3.8 per 100 000 population). The most common serotype was serotype 3 (52.9%), followed by serotypes 19A (5.8%) and 14 (4.8%).

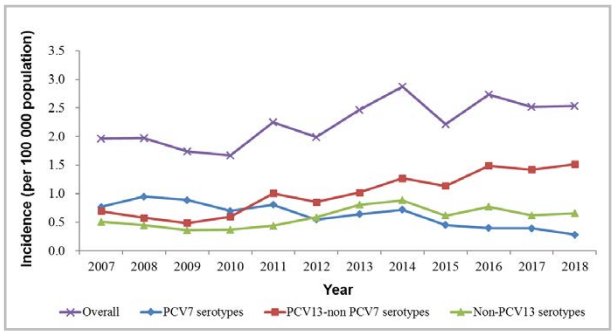


*Figure 4 - IPD incidence in Hong Kong by serotype groups, 2007 to 2018. (Note: 2007 to 2014: Public Health Laboratory Services Branch laboratory surveillance (bacterial culture only); 2015 onwards: IPD notification to CHP (bacterial culture + PCR)).*

[1]IPD was listed as a notifiable infectious disease under the Prevention and Control of Disease Ordinance (Cap 599) in 2015.
[2]There are more than 90 serotypes of pneumococci and existing pneumococcal vaccines covered different serotypes.

### *Legionnaires' disease*

In 2018, CHP recorded a total of 105 cases of Legionnaires' disease (LD) as compared with 72 cases and 76 cases in 2017 and 2016 respectively. The characteristics of the cases remained similar to those recorded in the past. Among the 105 cases, 103 were Chinese and the remaining two cases affected an Italian and a Filipino. Their ages ranged between 40 and 97 years (median: 68 years). Males were predominately affected with a male to female ratio of 6:1. All patients developed pneumonia requiring hospitalisation and 29 patients (27.6%) required admission to intensive care unit. Thirteen patients died within the same admission for LD (12 due to LD and one due to concomitant diseases). Most cases were initially diagnosed by either urinary antigen test (86, 81.9%) or PCR of respiratory specimens (18, 17.1%), while the remaining case (1.0%) was initially diagnosed by culture of respiratory specimen. Seventy-eight cases (74.3%) and 11 cases (10.5%) were classified as locally acquired and imported infections respectively, while the place of infection of the remaining 16 cases (15.2%) could not be determined because the patients had stayed both inside and outside Hong Kong during the IP. Among the 78 locally acquired cases, their residential places during the IP were distributed in various districts in Hong Kong. Environmental investigations were undertaken for 12 locally acquired cases. In two sporadic nosocomial cases in two different hospitals, the respiratory specimens collected from the patients and some of the positive water samples collected from the wards where they had stayed during the IP were of the same sequence type of *Legionella pneumophila* serogroup 1 (Lp1). For the remaining 10 cases, the source of infection could not be confirmed after environmental investigations. Of note, there were three epidemiologically linked cases involving three patients who either resided in, or had visited a private residential estate in Tseung Kwan O during the IP. All water samples and environmental samples collected in the estate were tested negative for Lp1.

### *Pertussis*

In Hong Kong, there has been an upsurge in the notified pertussis cases since 2017 and the increasing trend continued in 2018. The number of pertussis recorded by CHP has increased from 20 to 50 cases per year during 2011-2016 to 69 cases in 2017, and further to 110 cases in 2018 which was the highest annual number recorded in the past few decades.

Among the 110 pertussis cases recorded in 2018, 97 (88%) were locally acquired infections and six (5%) were imported infections from Mainland China. The place of infection of the remaining seven cases could not be ascertained. One fatal case was recorded affecting an 88-year-old woman with underlying illnesses who died of pneumonia deemed not pertussis-related.

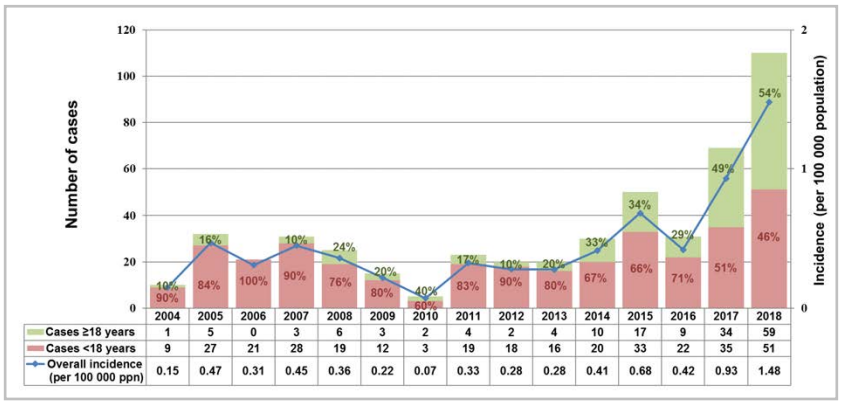


*Figure 5 - Annual number and incidence of pertussis cases reported in Hong Kong, 2004 to 2018.*

Overall, young children were most affected. Forty-two cases (38%) were infants aged below six months and all had not completed the primary series of pertussis vaccination, including 18 (16% of all cases) aged below two months who were not yet due for the first dose of pertussis-containing vaccine. The incidence among children aged zero to four years reached 17.6 cases per 100 000 population, followed by 1.3 among elderly aged 65 years or above, and 0.9 among adults aged 20 to 39 years. There has been an increase in the proportion of adult cases (aged 18 years or above) in the past two years. This may be partially contributed by a wider use of the highly sensitive PCR for diagnosis of pertussis especially for adult cases. In 2018, adults accounted for 54% of all cases, as compared with 20 to 34% during 2013-2016. Among the 59 adult cases recorded in 2018, 47 (80%) had no or unknown history of pertussis vaccination, while 26 (44%) were not born in Hong Kong and almost all (92%) these non-local born adults had no known history of vaccination against pertussis.

The number of pertussis clusters also increased from 3 to 7 clusters during 2013-2017 to 12 in 2018. All the 12 clusters were small clusters involving two to three cases and all except one cluster occurred in household setting. The household clusters mostly affected infants, their family members and other household contacts. The remaining cluster affected three neonates in a post-natal ward. Among the 23 cases involved in household clusters, nine (39%) were infants less than six months old and 10 (43%) cases involved adults close contacts of these infants (e.g. mothers and carers). Many of these adult cluster cases reported no known history of pertussis vaccination (60%) and were non-local born (40%).

### *Psittacosis*

In 2018, CHP recorded 17 cases of psittacosis, as compared with nine and eight cases in 2017 and 2016 respectively. The cases affected eight males and nine females, with ages ranging from 35 to 77 years (median: 55 years). All patients developed pneumonia and required hospitalisation, with four patients (23.5%) requiring admission to intensive care units and one (5.9%) to high dependency unit. All patients recovered after treatment. Sixteen cases (94.1%) were classified as locally acquired, while the place of infection of the remaining case was undetermined as the patient had stayed both inside and outside Hong Kong during the IP without history of obvious contact with birds in both places. Regarding risk exposure, six patients (35.3%) had contact

with birds/bird droppings and/or history of visiting pet bird shop during the IP. The remaining 11 patients (64.7%) could not recall any known exposure to birds prior to their disease onset. Fifteen (88.2%) were sporadic cases without epidemiological linkage, while two (11.8%) were household contacts with common exposure to a parrot.

### *Seasonal influenza*

The 2017/18 winter influenza season in Hong Kong arrived in early January, which lasted until late March. The local seasonal influenza activity had remained a low level from April to mid-December. Unlike previous years, there was no summer influenza season in Hong Kong 2018.

The 2017/18 winter influenza season (about 12 weeks) was shorter than the major seasons in the previous three years (about 16 to 17 weeks). The predominating viruses were influenza B which constituted 76% of the positive influenza detections in the Public Health Laboratory Services Branch of CHP. Of note, influenza B had not been the predominating virus in local influenza seasons in the past few years. Children were more affected in this season. Among the institutional influenza-like illness (ILI) outbreaks recorded by CHP, 38% occurred in kindergartens/child care centres and another 35% occurred in primary schools. The weekly influenza-associated hospitalisation rates in public hospitals were highest in children aged below six years (peaked at 8.82 per 10 000 population), followed by elderly aged 65 year or above (4.04) and children aged six to 11 years (3.66).

In this season, CHP totally recorded 570 cases of intensive care unit admissions or deaths with laboratory confirmation of influenza among adult patients, including 382 fatal cases. Among them, 413 (72%) affected elderly aged 65 years or above and only 36% of them were known to have received the seasonal influenza vaccine (SIV) for this season. Most of the severe cases (75%) had pre-existing chronic medical diseases.

For paediatric patients aged below 18 years, 31 cases (including three deaths) of influenza-associated severe complication/death were recorded in the whole year of 2018, as compared with 31 and 27 in 2016 and 2017 respectively. Twenty cases were reported during the winter influenza season. Among the 31 paediatric cases, seven cases (22.6%) had pre-existing chronic diseases. Twenty-five cases (80.6%) did not receive the SIV for this season. The cumulative population incidences of severe cases in different age groups were within the range observed in the major seasons in previous years.

### *Streptococcus suis infection*

In 2018, CHP recorded seven cases of *Streptococcus suis* infection, affecting three males and four females, with ages ranging from 47 to 98 years. All of them acquired the infection locally. The most common symptoms reported were fever (86%), followed by dizziness (43%) and headache (29%). Five patients were complicated with sepsis with two of them having arthritis and one having cellulitis. The remaining two patients had localised cellulitis and skin infection respectively. All seven patients required hospitalisation with stable condition and had recovered after treatment.

Regarding the exposure, five (71%) had handled raw pork with three of them reported having wound on hands but without wearing gloves. These five cases included one butcher, one cleansing worker in supermarket, one taxi driver and two retired persons. For the remaining two cases, one had unknown exposure history as the case was chair-bound and did not participate in any high-risk activities. The remaining one was a security guard whose left index finger was bitten by a wild boar in the work premises.

## NEWS IN BRIEF

### Three sporadic cases of measles in travellers returning from the Philippines

In January 2019, the Centre for Health Protection (CHP) recorded three confirmed cases of measles who had travelled to the Philippines during the IP. The first case affected a 40-year-old woman who had presented with fever, headache and rash since January 6. Her nasopharyngeal swab (NPS) collected on January 10 was tested positive for measles virus RNA. The second case affected a 39-year-old woman who had presented with fever, cough, runny nose, headache and rash since January 12. Her NPS collected on January 16 was tested positive for measles virus RNA and her blood specimen collected on January 18 was also tested positive for measles IgM. The third case affected a 38-year-old woman who had presented with fever, headache and rash since January 26. Her blood specimen collected on January 29 was tested positive for measles IgM. All three patients enjoyed good past health. They all required hospitalisation and were discharged after management. Their condition was stable all along.

Epidemiological investigations revealed that all three patients were born in the Philippines with unknown measles vaccination status. All three patients stayed in different parts of the Philippines during their respective IP and no direct epidemiological linkage among the three cases could be identified. Their household contacts remained asymptomatic. So far, contact tracing did not identify further cases.

**Infectious Disease Forum: The Era of Rapid Diagnostics on January 28, 2019**

Infection Control Branch, CHP organised an infectious disease forum (ID forum) on January 28, 2019.

One of the speakers was Professor Rosanna W Peeling, who is the Chair of Diagnostic Research and the Director of International Diagnostics Centre of London School of Hygiene and Tropical Medicine (LSHTM). The topic of her talk was "How will Rapid Diagnostics Revolutionise Healthcare in the Coming 5-10 years?". Professor Peeling also introduced to Hong Kong audience to free online training module called Massive Open Online Course (MOOC) on the Role of Diagnostics in the antimicrobial resistance (AMR) Response. LSHTM has developed this MOOC to raise awareness on the global AMR crisis and increase knowledge and skills on the role of diagnostics in the AMR response. All MOOC course materials can be freely downloaded to facilitate classroom teaching, tutorials, and in-service training in health care institutions. Hospital Authority has contributed to the MOCC by making a video to share the experience of MDRO control in both hospital and residential care homes of elderly in Hong Kong. MOOC will be launched in May 2019 globally.

*Photo - Professor Rosanna W Peeling from LSHTM, UK (left) and Dr Kristine Luk from Princess Margaret Hospital (right).*

The other speaker was Dr Kristine Luk, consultant microbiologist of Princess Margaret Hospital. The title of her talk was "High Prevalence and Frequent Acquisition of *Clostridium difficile* Ribotype 002 Among Nursing Home Residents in Hong Kong".

The ID forum was well attended by over 100 audiences.

**A local sporadic case of listeriosis**

On February 1, 2019, CHP recorded a sporadic case of listeriosis affecting a 65-year-old man with underlying illness. He had presented with fever, headache, neck pain, vomiting and confusion since January 29 and was admitted to a public hospital on January 30. The clinical diagnosis was meningitis. His cerebrospinal fluid collected on January 31 grew *Listeria monocytogenes*. He was treated with antibiotics and his current condition was stable. He had no recent travel history. He did not recall consuming any high risk food during the IP. His household contacts remained asymptomatic.

**CA-MRSA cases in January 2019**

In January 2019, CHP recorded a total of 110 cases of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infection, affecting 65 males and 45 females with ages ranging from six days to 91 years (median: 38 years). Among them, there were 87 Chinese, 10 Filipinos, 4 Caucasian, 4 Pakistani, 1 Indonesian, 1 Nepalese, and 3 of unknown ethnicity.

One-hundred and nine cases presented with uncomplicated skin and soft tissue infections while the remaining case had severe CA-MRSA infection. The severe case affected a 34-year-old man with good past health. He presented with fever and left facial swelling since December 28, 2018 and was admitted to a public hospital on January 1, 2019. He was treated with surgical drainage and antibiotics. Blood specimen collected on January 1, 2019 and left upper lip tissue collected on January 3, 2019 were both cultured positive for CA-MRSA. He was diagnosed to have perioral cellulitis and CA-MRSA sepsis. He remained in stable condition and was discharged on January 15, 2019.

Separately, the isolate of one case affecting a 39-year-old man was found to be resistant to mupirocin. The patient presented with right shin abscess and cellulitis in the end of December 2018. He was treated with antibiotics and surgical drainage. His condition remained stable.

Among the 110 cases, two cases involved healthcare workers were recorded, including a nurse and a medical doctor working in different hospitals. Investigation revealed that the medical doctor was a household contact of a previous confirmed case reported in November last year. Apart from the above cluster, two household clusters, with each affecting two persons, were identified in January 2019.

**Scarlet fever update (January 1, 2019 – January 31, 2019)**

Scarlet fever activity decreased in January 2019. CHP recorded 167 cases of scarlet fever in January 2019 as compared with 189 cases in December 2018. The cases recorded in January 2019 included 93 males and 74 females aged between six months and 46 years (median: six years). There were three institutional clusters all occurring in kindergartens/child care centres, affecting eight children in total. No fatal cases were reported in January 2019.