Jun 16 – Jul 20 2024 WEEKS 25 – 29 VOL 20 ISSUE N° 7

Communicable Diseases WATCH

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

FEATURE IN FOCUS

Investigation of two local cases of dengue fever in Hong Kong, 2024

Reported by Dr YEUNG Pui-shan, May, Medical and Health Officer and, Dr FUNG Wing-fai, Benjamin Senior Medical and Health Officer, Epidemiology Division, Communicable Disease Branch, CHP.

The Centre for Health Protection (CHP) of the Department of Health (DH) confirmed two local cases of dengue fever in Tin Shui Wai in 2024. We summarise below the epidemiological investigation and actions taken in response to the cases.

The first patient was a 54-year-old woman with underlying illnesses. She developed fever and retro-orbital pain on June 6 and consulted a private doctor on June 9. She attended the Accident and Emergency Department (AED) of a public hospital on June 11, and was admitted for treatment on the same day. The blood specimen collected on June 15 was tested positive for dengue virus NS1 antigen and dengue virus IgM. She recovered and was discharged on June 19. She lived with her family in Tin Shui (1) Estate. She worked in the Hong Kong International Airport and claimed to have mosquito bite while on public transport to and from workplace. Investigation revealed that she had only left Hong Kong for Shenzhen for a few hours during the incubation period.

The second local case of dengue fever was a 44-year-old man, who lived in a building next to the first case's residence of the same public housing estate. He presented with fever on June 21. He attended the AED of a public hospital on June 22 without admission. Later, he attended the AED on June 25 again due to persistent fever, gum bleeding and skin rash, and was admitted for treatment on the same day. The blood specimen collected on June 25 was tested positive for dengue virus RNA, dengue virus NS1 antigen and dengue virus IgM. He was discharged on July 2. Investigation revealed that he had only left for Shenzhen for a short duration during the incubation period. Except for close proximity of their residence, there was no overlap in local movements between the first and second local dengue fever cases. These two cases were considered epidemiologically linked and was the first local outbreak of dengue fever detected since the last one back in 2018. Considering the date of symptom onset of the patient and the incubation period of dengue fever (ranges from three to 14 days), it is possible that the second case had already been bitten by the vector and infected before the enhanced anti-mosquito work which started on June 18.

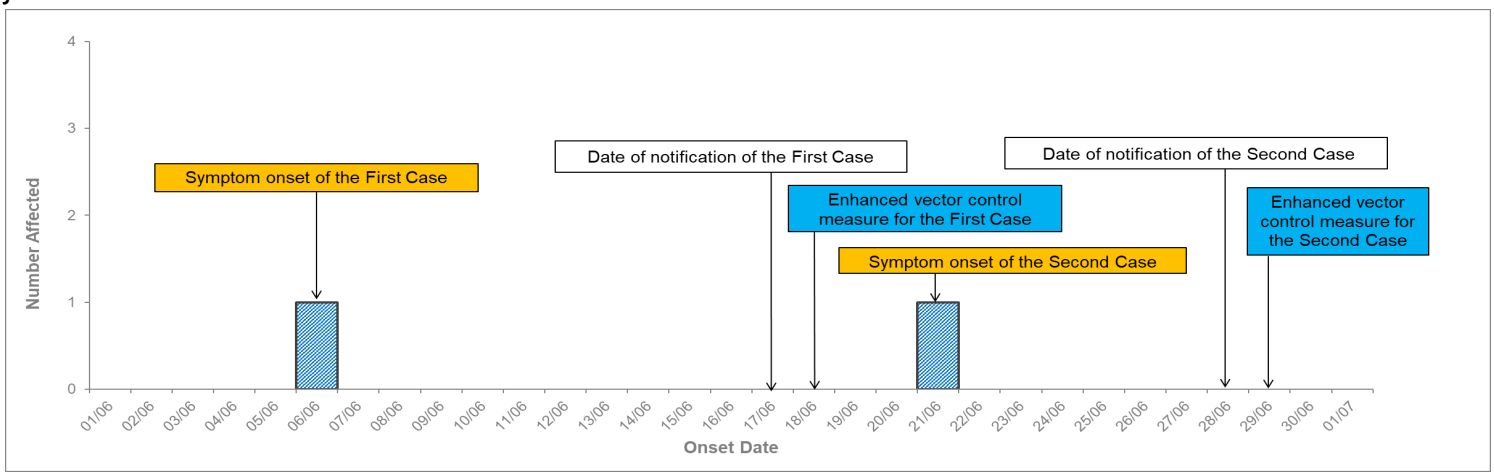

Figure 1 – Epidemic curve of the two local cases of dengue fever

The CHP conducted epidemiological investigation and visited the patients' residence, jointly with the Pest Control Advisory Section (PCAS) of the Food and Environmental Hygiene Department (FEHD) (Figure 1). Active case finding was carried out in Tin Shui

(1) Estate, the CHP had contacted the residents of the estate by phone and survey with questionnaires was done. A hotline was set up for local residents to report symptoms. The management of other premises concerned such as schools, hospitals and public utilities were also reminded to report suspected cases to CHP. The Hospital Authority (HA) and private doctors were alerted of the incident and advised to report suspected cases. The household members of the two cases and some residents were tested negative for recent dengue fever infection (Figure 2). No other case was identified so far.

To raise the awareness of local residents to adopt anti-mosquito measures and seek medical advice early if they develop symptoms, health talks were conducted jointly with PCAS (Figure 3). Pamphlets were distributed to community members. Home Affairs Department and District councilors were engaged to alert residents in the district about the risk of dengue fever and to deliver health promotion messages. Five press releases were issued to update members of the public about the progress of the incident. Radio interviews were conducted and Facebook messages were posted to heighten public awareness.

PCAS of FEHD had carried out vector investigation and mosquito control measures in the vicinity of the patients' residence, their workplaces and areas that the patients had visited. So far, all adult mosquito samples collected were tested negative for dengue virus.

To eliminate potential breeding sites of mosquitoes and to avoid mosquito bites remain the best measures for the prevention and control of dengue fever. Travellers who return from affected areas should apply insect repellent for 14 days after arrival in Hong Kong to prevent mosquito bites. If they feel unwell, they should seek medical advice promptly, and provide travel details to the doctor. Members of the public may visit CHP's dengue fever page (https://www.chp.gov.hk/en/features/38847.html) or DH's Travel Health Service (https://www.travelhealth.gov.hk/eindex.html) for further information on dengue fever.

Figure 2 – Blood screening tests were conducted for the residents in Tin Shui Wai.

Figure 3 – CHP held a health talk jointly with the FEHD on June 29 in Tin Shui Community Centre.

Review of community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) infection in Hong Kong, 2016 – 2024

Reported by Dr Shirley TSANG, Scientific Officer, Respiratory Disease Section, Surveillance Division, Communicable Disease Branch, CHP.

Community-associated methicillin-resistant *Staphylococcus aureus* (CA-MRSA) is different from the healthcare-associated methicillin-resistant *Staphylococcus aureus* strains found in healthcare settings in terms of antibiotic resistance pattern and molecular feature. Most *S. aureus* infections can be effectively treated with antibiotics. However, MRSA is a strain of *S. aureus* that is resistant to antibiotics including methicillin and other commonly used beta-lactam antibiotics such as oxacillin, penicillin, amoxicillin and cephalosporins. In addition, patients with CA-MRSA infections may not have a history of stay in hospitals or residential institutions within a year prior to symptom onset. CA-MRSA has primarily been associated with skin and soft tissue infections (SSTIs) such as pimples, boils, abscesses or wound infections, but can also cause rapidly progressive necrotizing pneumonia and necrotizing fasciitis, often in otherwise healthy children and young adults.

CA-MRSA infection has been made a notifiable disease since January 5, 2007 with a view to strengthening surveillance as well as prompt implementation of preventive and control measures against the disease. The Centre for Health Protection (CHP) of the Department of Health (DH) had previously published a situation review of CA-MRSA infection from 2012 to 2015 at the

Communicable Diseases Watch in 2015. This article reviews the characteristics of the CA-MRSA cases reported to the CHP from 2016 through 2024 (up to June 30, 2024).

CA-MRSA incidence in Hong Kong

The annual number of reported cases had been on an increasing trend during 2007 to 2017 (Figure 1). The incidence of CA-MRSA infection based on notifications was 15.9 cases per 100 000 population in 2016, despite it was still grossly lower than the incidence overseas at the same time. The incidence in 2017 reached 17.0 cases per 100 000 population, and then stabilised in 2018 and 2019 (16.3 and 16.5 cases per 100 000 respectively) before the arrival of the COVID-19 pandemic. The incidence of CA-MRSA dropped drastically from 10.9 cases per 100 000 population in 2020 to 5.7 cases per 100 000 population in 2022 during the COVID-19 pandemic (2020-2022) and remained at a low level in 2023 (6.2 cases per 100 000 population) (Figure 2). For the absolute number of cases, a total of 7 437 cases of CA-MRSA infection were recorded from 2016 to June 2024. Notably, the annual reported number of CA-MRSA cases markedly decreased from about 1 200 cases during 2016 to 2019 to between 400 and 800 cases during the pandemic period from 2020 to 2022 (Figure 2). After resumption of normalcy in early 2023, the number of cases remained low at 469 in 2023 and 281 cases were recorded in 2024 up to June (Figure 2). Recent studies have demonstrated that the COVID-19 pandemic had a significant impact on the epidemiology of other infectious diseases especially diseases mainly caused by pathogens transmitted by droplet or close contact[1,2]. The implementation of public health and social measures against COVID-19 including constant use of masks in crowded places as well as frequent hand washing, and social distancing likely contributed significantly to the decline in the number of CA-MRSA infections during the intra-pandemic period.

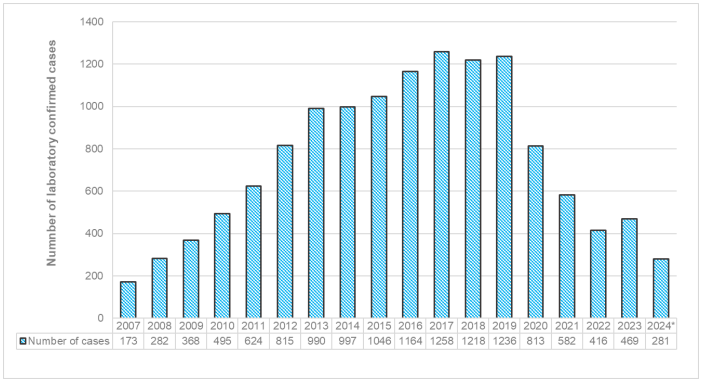

Figure 1 – Number of reported CA-MRSA cases by year in Hong Kong, 2007 – 2024 (up to June 30, 2024).*

Figure 2 – Number of laboratory confirmed CA-MRSA cases and incidence of CA-MRSA infection in Hong Kong by year, 2016- 2024 (up to June 30, 2024).*

Clinical features

Out of the 7 437 cases, about two-third required hospitalisation while the remaining were managed in outpatient settings. Clinically, 7 300 cases (7 300/7 437; 98.2%) presented with non-severe infections. Among them, 99.8% presented with uncomplicated skin and soft tissue infections (SSTIs) encompassing skin abscess, boil, carbuncle and impetigo, etc. The most commonly affected sites of SSTIs were lower limbs region (28.7%), followed by buttock, groin / perineum (20.7%), head and neck (18.1%), back / trunk / abdomen (16.5%), and upper limbs / axilla (15.9%). 5 517 (74.2%) of these cases required surgical management such as aspiration, incision and drainage, and surgical debridement of the lesions. Another 14 cases of non-severe CA-MRSA infection involved upper/lower respiratory tract infection (11), urinary tract infection (2), and conjunctivitis (1).

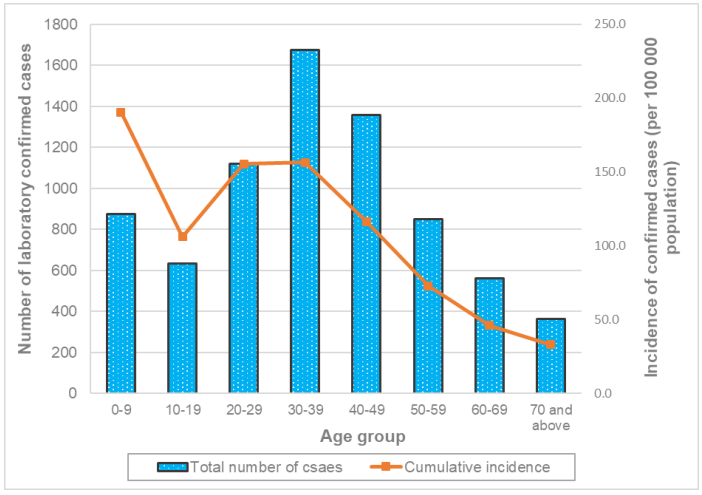

Figure 3 – Age distribution and cumulative incidence of the CA-MRSA cases reported from 2016-2024 (up to June 30, 2024).

The remaining 137 cases (137/7 437; 1.8%) presented with severe CA-MRSA infections. The presenting conditions include septicaemia (71), pneumonia (34), osteomyelitis (9), necrotizing fasciitis (4), and severe SSTI infections (19). Among the severe CA-MRSA cases, 33 cases required intensive care. Twelve cases (0.2%) died of CA-MRSA, with cause of death including pneumonia (3), septic shock (3), sepsis (3), necrotizing fasciitis (2), and osteomyelitis (1).

Epidemiological features

There were no significant changes in the epidemiological characteristics over the years (Table 1). Overall, the male-to-female ratio was 1.4:1. The cases aged from nine days to 100 years (median: 36 years). Those aged between 20 and 49 years constituted 55.8% of the cases (Figure 3). The cumulative incidence in this reporting period was highest in children aged below ten years and adults between 20 and 39 years. Recurrent infections accounted for 606 (8.1%) cases. Regarding the ethnicity, the majority (77.0%)

of the cases were Chinese, followed by other Asian (10.8%), Filipinos (7.3%), Caucasian (3.6%), and other ethnicities (1.3%) (Table 1). The monthly number of CA-MRSA cases notifed ranged from 20 to 123, with relatively more (44.4%) recorded during the summer months from May to September. In addition, 29 cases (0.41%) stayed in correctional facilities and 38 cases (0.64%) were residents of other institutions such as residential care homes for the elder persons or persons with disability.

Table 1 – Characteristics of CA-MRSA cases from 2016 to 2024 (up to June 30, 2024).

	2016 - 2019 (Pre-pandemic)	2020-2022 (Pandemic)	2023*	2024 (up to June 30, 2024)	2016-2024 (up to June, 30 2024)
Number of laboratory confirmed CA-MRSA cases	4 876	1 811	469	281	**7 437**
Sex ratio (Male:Female)	1.4:1	1.5:1	1.6:1	1.6:1	**1.4:1**
Age range (median)	9 days to 100 years (36 years)	15 days to 99 years (37 years)	10 days to 99 years (36 years)	15 days to 95 years (37 years)	**9 days to 100 years (36 years)**
Cases with known ethnicity	Chinese: 76.2% Other Asians: 10.4% Filipino: 8.7% Caucasian: 3.8% Others: 0.9%	Chinese: 80.0% Other Asians: 10.3% Filipino: 4.6% Caucasian: 3.5% Others: 1.7%	Chinese: 73.8% Other Asians: 16.2% Filipino: 5.1% Caucasian: 2.2% Others: 2.7%	Chinese: 76.8% Other Asians: 11.2% Filipino: 5.4% Caucasian: 3.9% Others: 2.7%	**Chinese: 77.0%** **Other Asians:10.8%** **Filipino: 7.3%** **Caucasian: 3.6%** **Others: 1.3%**

*The World Health Organization declared an end to the global Public Health emergency for COVID-19 on May 5, 2023. (https://www.who.int/news/item/05-05-2023-statement-on-the-fifteenth-meeting-of-the-international-health-regulations-(2005)-emergency-committee-regarding-the-coronavirus-disease-(covid-19)-pandemic)

Epidemiological investigation revealed that most cases (97.3%) were sporadic infections and that a total of 200 clusters affecting 421 persons were recorded between 2016 and June 2024. Among the clusters, 194 were small household clusters with 2 to 4 persons affected in each cluster. The remaining six were institutional outbreaks involving three hospitals, one drug treatment and rehabilitation centre, one university residential hall, and one residential care homes for persons with disabilities. The number of cases in each outbreak ranged from 2 to 3 persons. Separately, a total of 102 (1.4%) sporadic CA-MRSA cases affected healthcare workers. Contact tracing did not reveal any other epidemiological linked cases in the concerned healthcare settings.

Antibiotic susceptibility

There were no significant changes in the antibiotic resistance pattern over the years. Majority of the CA-MRSA isolates remained sensitive to vancomycin (99.9%), fusidic acid (98.0%), cotrimoxazole (98.2%), and gentamicin (91.6%). The percentage of the isolates which were sensitive to clindamycin and erythromycin were 67.6% and 55.2%, respectively. Separately, from 2016 to 2024 (up to June 30, 2024), 36 isolates (0.5%) were found to be resistant to mupirocin.

Discussion

In Hong Kong, the "search and destroy" strategy is employed as one of the measures to prevent further spread of CA-MRSA in the community. For every reported case, decolonization therapies would be offered to the case and their close contacts irrespective of their CA-MRSA carriage status. To improve the acceptable rate of decolonization, the CHP has provided more convenient venues such as public and private hospitals to facilitate patients to collect the prescription items for decolonization since 2017. The proportion of cases receiving decolonization therapy has been maintained to over 80% since 2018, which could have contributed to the stabilised trend since 2017.

Conclusion

In summary, the recorded high number of CA-MRSA cases had decreased to a low level during the COVID-19 pandemic (2020 to 2022) and remained low after the resumption of normalcy in 2023. Despite that, as the main mode of transmission of CA-MRSA infections is through direct contact (with wounds, discharge, and contaminated surfaces of shared items), the risk of CA-MRSA infection persists in the community. Thus, members of the public are reminded to continue to stay vigilant and observe good personal and environmental hygiene to prevent the disease.

Prevention of CA-MRSA infection

To prevent CA-MRSA infection, the public are advised to:

- Use antibiotics only under medical advice. The frequency and dosage as prescribed by doctors should be strictly followed and the whole course of therapy should be completed;
- Maintain good personal hygiene including proper hand hygiene, avoidance of sharing personal items such as towels, clothing or uniforms, razors or nail-clippers;
- Disinfect wounds promptly and cover the wounds properly with waterproof adhesive dressings until healed. Avoid contacts sports and visiting public bathrooms if there is an open wound, and consult a doctor promptly if symptoms of infection develop; and
- Maintain good environmental hygiene including regular cleaning and disinfecting surfaces of shared items (e.g. athletic equipment and mats) in public places such as sports centres and public bathrooms.

Further information on CA-MRSA can be found on the CHP website at: http://www.chp.gov.hk/en/content/9/24/5392.html

References

[1] Li K. et al. Temporal shifts in 24 notifiable infectious diseases in China before and during the COVID-19 pandemic. Nat Commun. 2024 May 8;15(1):3891.
[2]. Facciolà A. et al. Impact of the COVID-19 pandemic on the infectious disease epidemiology. J Prev Med Hyg. 2023 Nov 1;64(3):E274-E282.

NEWS IN BRIEF

Six local sporadic cases of psittacosis

The Centre for Health Protection (CHP) of the Department of Health (DH) recorded six sporadic cases of psittacosis residing in different districts (Sham Shui Po (1), Kowloon City (1); Kwai Tsing (1); North Point (1); Shatin (1); Kwun Tong (1)) of Hong Kong from mid June to mid July.

The first case affected a 73-year-old retired man with underlying illnesses residing in Sham Shui Po. He presented with cough and shortness of breath on June 2, and was admitted to a public hospital on June 9 due to worsening of symptoms. Chest X-ray showed diffuse left and right lower zone consolidations. He was intubated due to respiratory failure, requiring intensive care. His condition improved with antibiotic treatment, and he was extubated and transferred to general ward on June 17. Endotracheal aspirate collected on June 11 was positive for *Chlamydia psittaci* DNA. He had travelled to Macao and Zhuhai during the incubation period but denied contact with birds or bird droppings there. He did not keep any birds at home, but reported presence of pigeons around his residential area. All home contacts were asymptomatic. The case was referred to Agriculture, Fisheries and Conservation Department (AFCD) and Food and Environmental Hygiene Department (FEHD) for follow-up.

The second case affected a 72-year-old part-time domestic clearning worker with underlying illnesses residing in Kowloon City. She worked in Wan Chai District. She presented with fever, headache, myalgia, dry throat and shortness of breath on June 16 and was admitted to a public hospital on June 17 due to worsening of symptoms. Chest X-ray showed right upper zone consolidation. She was intubated due to respiratory failure, requiring intensive care. Her condition was still critical. Tracheal aspirate collected on June 24 was positive for *Chlamydia psittaci* DNA. She did not travel outside Hong Kong during the incubation period. She did not keep any birds at home and did not recall other possible exposure to bird or bird droppings. Her home contact was asymptomatic.

The third case affected a 73-year-old retired man with underlying illnesses residing in Kwai Tsing. He presented with fever, cough, shortness of breath and generalised weakness on June 19, and was admitted to a public hospital on the same day. Chest X-ray showed left-sided haziness. His condition improved with antibiotic treatment. Sputum collected on June 20 was tested positive for *Chlamydia psittaci* DNA. During the incubation period, he had no travel history. He did not keep any birds at home and denied any contact with birds, their droppings or carcasses. However, he reported seeing flocks of pigeons at a park in Sham Shui Po where he visited every day. His home contacts were asymptomatic. The case was referred to AFCD, FEHD and Leisure and Cultural Services Department for follow-up.

The fourth case affected a 70-year-old retired man with underlying illnesses in North Point. He presented with fever, cough, rhinitis and malaise on June 15, and was admitted to a public hospital on June 16 due to worsening of symptoms. He was intubated due to respiratory failure, requiring intensive care. He was extubated on June 27, but remained in serious condition. Endotracheal

aspirate collected on June 21 was positive for *Chlamydia psittaci* DNA. He travelled to Thailand during the incubation period but denied bird exposure. He did not keep any birds at home. He did not recall other possible exposure to bird or bird droppings. His home contacts were asymptomatic.

The fifth case affected a 75-year-old retired man with underlying illnesses residing in Sha Tin. He presented with fever and cough on June 13, and was admitted to a public hospital on June 16. His sputum collected on June 18 was tested positive for *Chlamydia psittaci* DNA. Computed Tomography of thorax on June 19 showed consolidative change at left lower lobe. He improved with antibiotic treatment and was discharged on July 3. He had no travel history during incubation period. He did not keep any birds at home, but reported presence of flocks of cranes at a park in Sha Tin where he took daily stroll but he denied direct contact with them. All home contacts were asymptomatic. The case was referred to AFCD and FEHD for follow-up.

The sixth case affected a 61-year-old retired man with underlying illnesses in Kwun Tong. He presented with fever, cough, headache, dizziness, malaise, and shortness of breath on June 24, and was admitted to a public hospital on July 3 due to worsening of symptoms. Computed Tomography of thorax on July 10 showed lobar pneumonia with left upper and lower lobe consolidation, right upper lobe ground glass opacities, and moderate pleural effusion. Sputum collected on July 7 was positive for *Chlamydia psittaci* DNA. His condition improved with antibiotics treatment. During the incubation period, he had no travel history. He did not keep any birds at home, but reported presence of pigeons around his residential area. He also reported contact of bird droppings on his clothes with bare hands. All home contacts were asymptomatic. The case was referred to AFCD and FEHD for follow-up.

Three sporadic cases of necrotising fasciitis due to *Vibrio vulnificus* infection

The first case involved a 59-year-old housewife with underlying illnesses residing in Tuen Mun. She developed fever and right hand redness on June 28, and was admitted to a public hospital on the same day in serious condition. The clinical diagnosis was necrotising fasciitis and surgical debridement of her right hand was performed. Her right hand wound swab grew *Vibrio vulnificus*. According to her family, she sustained a puncture injury at right hand when preparing a marine fish for meal on June 27. She had no history of recent travel.

The second case involved a 91-year-old housewife with underlying illnesses including diabetes mellitus, hypertension and heart failure residing in Shau Kei Wan. She presented with pain and swelling over left lower limb on July 3 and was admitted to a public hospital on July 4. The clinical diagnosis was necrotising fasciitis of left lower limb. Her condition deteriorated rapidly and was complicated with septic shock. Emergency left above-knee-amputation was performed. The wound tissue and fluid grew *Vibrio vulnificus*. She succumbed on July 5. According to her family, she handled sea fish and went to the wet market before the symptom onset on July 2 and July 3 despite no trivial injury or trauma was reported. She did not consume any uncooked seafood. She had no history of recent travel.

The third case involved an 85-year-old housewife with underlying illnesses residing in Kwai Tsing. She developed fever and left lower limb swelling on July 8, and was admitted to a public hospital on July 11 in serious condition. The clinical diagnosis was necrotising fasciitis and surgical debridement of left lower limb was performed. Her left lower limb wound swab grew *Vibrio vulnificus*. According to her friend, she visited a wet market in Tsuen Wan and purchased fish every day, but she did not recall any injury at left lower limb. There was no history of recent travel.

A possible case of sporadic Creutzfeldt-Jakob disease

On July 5, 2024, the CHP of the DH recorded a possible case of sporadic Creutzfeldt-Jakob disease (CJD) affecting a 78-year-old male with good past health. He presented with cognitive impairment in April 2024, and unstable gait in May 2024. He was admitted to a public hospital on May 29, 2024 and was found to have rapidly progressive dementia, cerebellar disturbance and akinetic mutism. His clinical presentation was compatible with CJD although electroencephalogram did not reveal typical features. His condition was critical. He had no known family history of CJD. No risk factors for iatrogenic or variant CJD were identified. He was classified as a possible case of sporadic CJD.

Exercise "Kyanite" tests Government's response against measles

In June 2024, the CHP of the DH organised a public health exercise, codenamed "Kyanite", to assess the readiness of government departments and relevant organisations in responding to imported measles cases with subsequent local transmission.

About 40 participants from the DH, the Leisure and Cultural Services Department, the Social Welfare Department, the Hospital Authority (HA) and the Airport Authority participated in the exercise as players or observers. The exercise consisted of two parts: a table-top exercise on June 5, 2024 and a ground movement exercise on June 13, 2024.

During the table-top exercise, the participants discussed and coordinated response measures for a simulated scenario in which two cases of measles infection occurred in an international youth leadership programme held in a holiday village, with subsequent disease transmissions on a flight and in a hospital.

The ground movement exercise simulated the HA's notification of a measles case. The CHP promptly commenced epidemiological investigations, conducted a site visit to the holiday village, performed contact tracing and set up a vaccination booth for post-exposure vaccination. The CHP also inspected the environment and implemented infection control measures.

To date, the CHP has coordinated 30 public health exercises, simulating situations such as novel influenza, plague and disease "X". The CHP will continue to organise such exercises to enhance the readiness of individuals and organisations in managing future outbreaks swiftly and effectively.

Photo 1 – The Director of Health, Dr Ronald Lam (front row, second right), and the Controller of the CHP of the DH, Dr Edwin Tsui (front row, third right), observing officers of the CHP providing post-exposure vaccination for a non-immune contact.

Photo 2 – Officers of the CHP conducting a site visit.