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Communicable Diseases WATCH

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

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FEATURE IN FOCUS

Recent increases in respiratory infectious disease activities in Hong Kong

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The activities of respiratory infectious diseases in Hong Kong have dramatically decreased since the start of COVID-19 pandemic in early 2020, which was likely related to the intensive preventive measures adopted by the whole community such as hand hygiene, mask wearing and social distancing. However, following the progressive resumption towards normalcy with gradual relaxation of control measures coupled by lifting of mandatory mask-wearing requirement, an increasing trend of upper respiratory infection (URI) activity has been observed. The Centre for Health Protection (CHP) of the Department of Health also recorded an increased number of institutional URI outbreaks and circulations of respiratory syncytial virus (RSV), rhinovirus/enterovirus and parainfluenza viruses in the community.

Outbreak surveillance

The weekly number of institutional URI outbreaks reported to CHP started to increase after the Chinese New Year holiday, especially after the resumption of whole-day face-to-face classes in secondary schools and primary schools on February 1 (Wednesday of week 5) and February 15 (Wednesday of week 7) respectively (Figure 1). The number of outbreaks increased from fewer than 10 outbreaks per week in mid-February (week 6) to more than 20 (ranged from 21 to 32) per week in the following five weeks (week 7 to 11). In view of increased reporting of URI outbreaks picked up in the second half of February, CHP issued letter to schools on February 22 to remind principals or persons in-charge to remain vigilant against the infections.

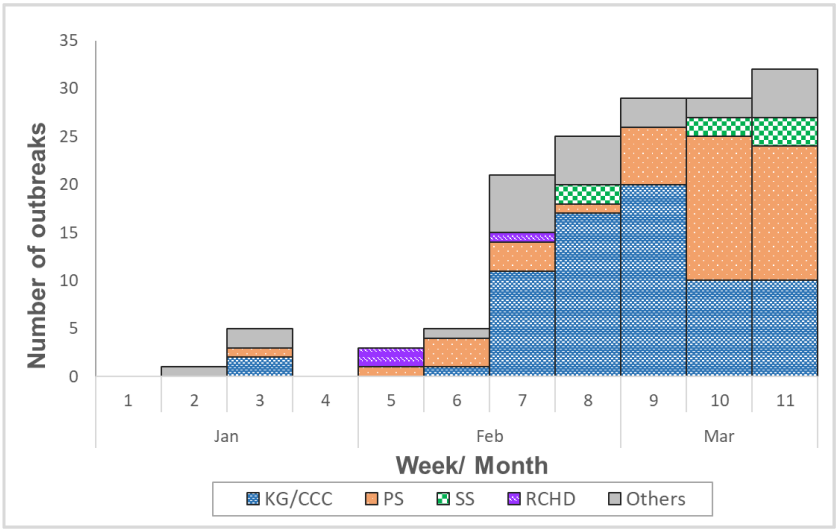

Figure 1 – Weekly number of institutional URI outbreaks, by type of institutions, 2023

During week 7 to week 11 (from February 12 to March 18), a total of 136 outbreaks were recorded. About half of them involved kindergartens/child care centres (KG/CCC) (50.0%), followed by primary schools (PS) (28.7%), residential CCC, special CCC and special schools (14.0%), secondary schools (SS) (5.2%), a residential care home for persons with disabilities (RCHD) (0.7%), a day activity centre (0.7%) and a hospital (0.7%). The sizes of these outbreaks ranged from 3 to 51 persons. There were 15 outbreaks each affected 20 persons or more, majority of which (12, 80.0%) occurred in KG/CCC, two in PS (13.3%) and the remaining one in a residential CCC.

Among the 136 outbreaks mentioned above, 37 (27.2%) outbreaks had respiratory pathogen identified. Twenty-two of these 37 outbreaks (59.5%) had cases with respiratory specimens tested positive for RSV, 12 (32.4%) with parainfluenza viruses and 12 (32.4%) with rhinovirus/enterovirus, whereas an outbreak can be associated with multiple causative agents.

Laboratory surveillance

For monitoring of respiratory infections other than seasonal influenza and COVID-19, CHP monitors the percentage of positive laboratory detections from respiratory specimens received by the Public Health Laboratory Services Branch (PHLSB) from the hospitals and community, as well as the percentage of positive laboratory detections from paediatric clinical specimens tested positive by multiplex PCR system by the Hospital Authority (HA). Increases in activities of RSV, rhinovirus/enterovirus and parainfluenza viruses among tested respiratory specimens have been observed recently (data as of March 22). Regarding RSV, the weekly percentage of specimens tested positive by HA and PHLSB both showed increases to peak levels of about 30% and 5% respectively in week 7 (week ending February 18), and then decreased to 13.7% (HA) and 1.9% (PHLSB) in week 11 (week ending March 18). (Figures 2a and 2b)

RSV

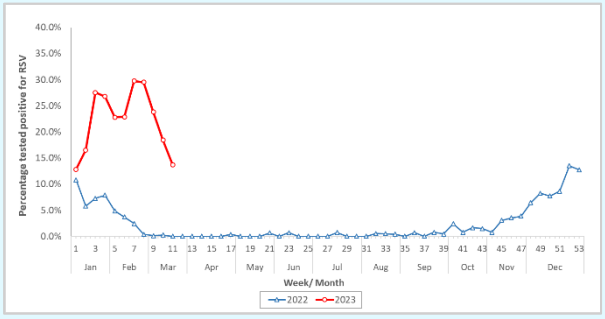

Figure 2a – Weekly percentages tested positive for RSV among paediatric respiratory specimens received by HA, 2022-2023

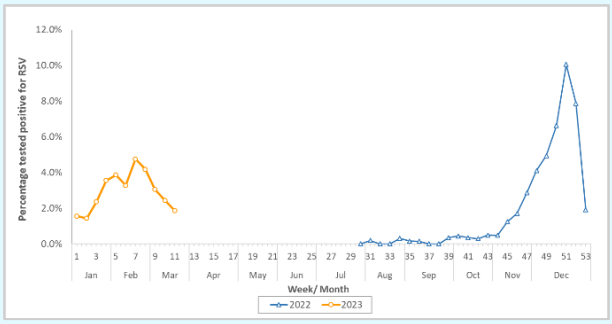

Figure 2b – Weekly percentages tested positive for RSV among respiratory specimens received by PHLSB, week 30 of 2022-2023

An obvious increase was also observed for the percentage of specimens tested positive for rhinovirus/enterovirus. For specimens received by HA, the corresponding percentage increased from 8.0% in week 5 (first week of February) to 38.3% in week 11. That from PHLSB also increased from around 1.0% to 5.3% during the same period. (Figures 3a and 3b)

Rhinovirus/ enterovirus

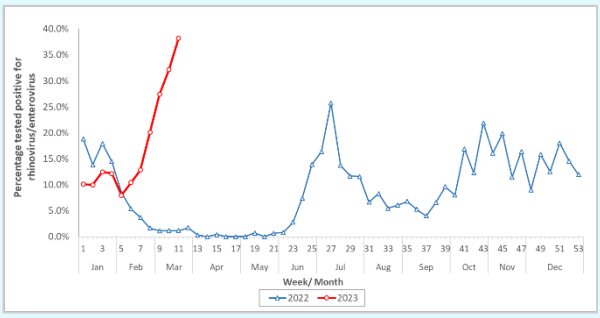

Figure 3a – Weekly percentages tested positive for rhinovirus/enterovirus among paediatric respiratory specimens received by HA, 2022-2023

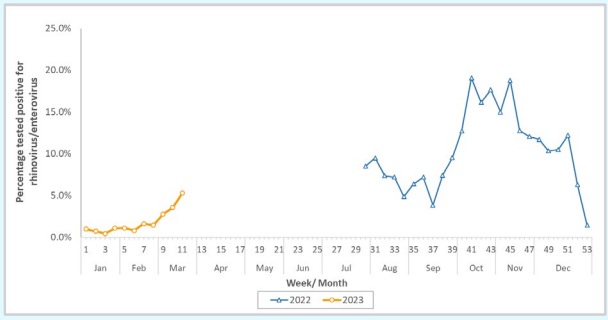

Figure 3b – Weekly percentages tested positive for rhinovirus/enterovirus among respiratory specimens received by PHLSB, week 30 of 2022-2023

Regarding parainfluenza virus, the percentage of specimens tested positive by HA started to increase from 6.8% in first week of 2023 to a peak of 17.6% in early March, and then decreased to 14.5% in week 11. For the specimens tested by PHLSB, the corresponding percentage increased to 2.3% in week 11 from a low level of 0.2% in week 1 of 2023. (Figures 4a and 4b)

Parainfluenza

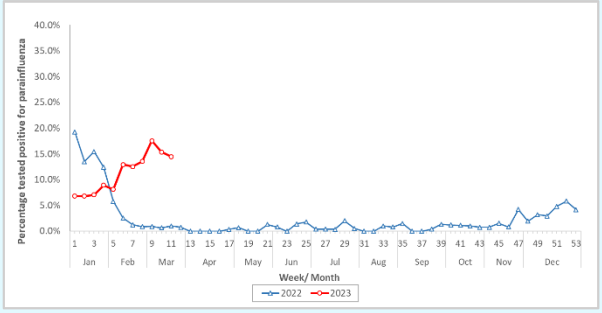

Figure 4a – Weekly percentages tested positive for parainfluenza virus among paediatric respiratory specimens received by HA, 2022-2023

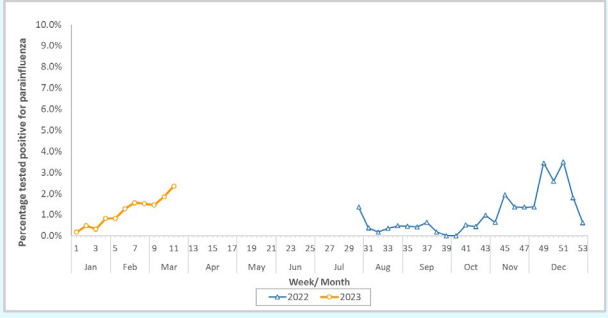

Figure 4b – Weekly percentages tested positive for parainfluenza virus among respiratory specimens received by PHLSB, week 30 of 2022-2023

In comparison, the weekly percentage of specimens tested positive for adenovirus and human metapneumovirus remained at relatively low levels in 2023. For specimens received by HA, the percentage positive for adenovirus fluctuated between 1.8% and 3.9% in 2023, comparable with the same period last year, while that of human metapneumovirus fluctuated between 0.6% and 1.4% in 2023. (Figures 5a and 6a) For specimens received by PHLSB, the corresponding percentages for adenovirus and human metapneumovirus fluctuated at levels below 0.3% and below 0.6% in 2023 respectively. (Figures 5b and 6b)

Adenovirus

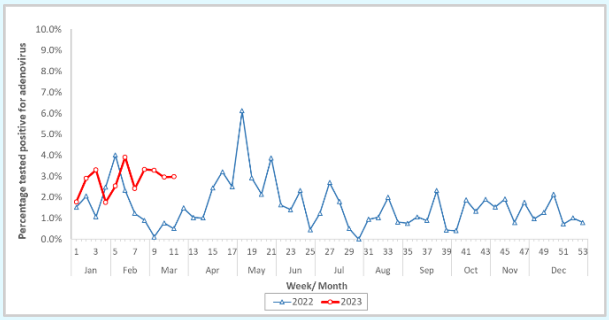

Figure 5a – Weekly percentages tested positive for adenovirus among paediatric respiratory specimens received by HA, 2022-2023

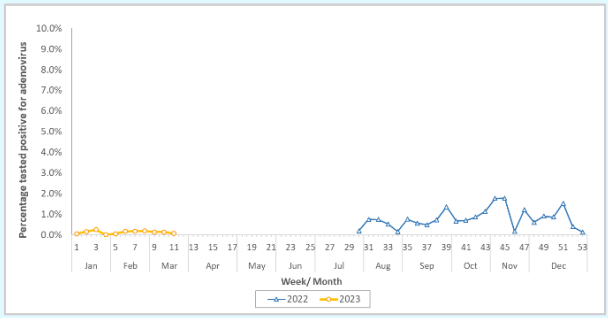

Figure 5b – Weekly percentages tested positive for adenovirus among respiratory specimens received by PHLSB, week 30 of 2022-2023

Metapneumovirus

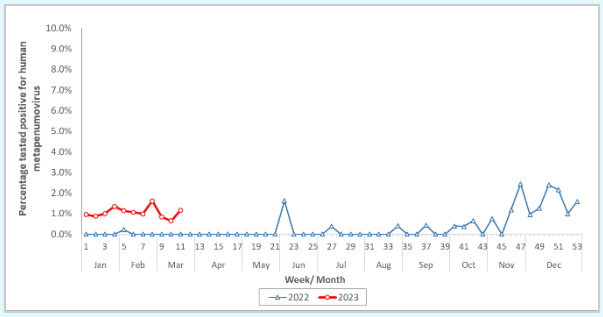

Figure 6a – Weekly percentages tested positive for human metapneumovirus among paediatric respiratory specimens received by HA, 2022-2023

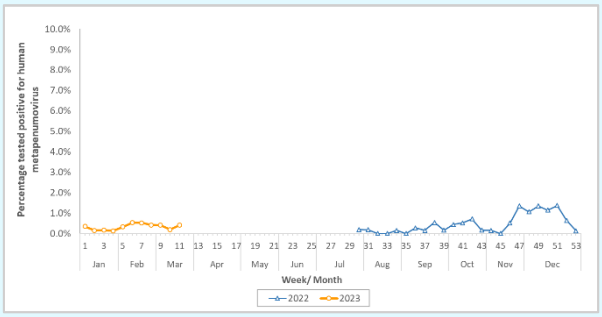

Figure 6b – Weekly percentages tested positive for human metapneumovirus among respiratory specimens received by PHLSB, week 30 of 2022-2023

In addition, the local seasonal influenza activity has slightly increased in the past two weeks. Among the respiratory specimens tested by PHLSB and HA, the weekly positive percentage of seasonal influenza viruses slightly increased from below 1% in early March to 3.3% in week 11. Majority (78%) of the detections in the past two weeks were influenza A(H1) viruses. Slight increase in the hospital admission for influenza was also noted, with the rate slightly increasing from 0.014 to 0.074 per 10 000 population in the same period. Such increases were mainly found with children aged under 12 years, adult aged 50-64 years and elderly aged 65 years or above. Regarding severe influenza infection, 9 cases have been reported in March so far (as of March 22), as compared with a total of 5 cases in January to February. For details about the latest situation of seasonal influenza, please refer to the weekly publication COVID-19 & Flu Express at https://www.chp.gov.hk/en/resources/29/100148.html.

Following the resumption of normalcy, challenges from the return of different respiratory infectious diseases are expected. The CHP will continue to closely monitor the respiratory infectious disease activities through multiple surveillance systems and the public should remain vigilance against respiratory infections.

Health tips for prevention of respiratory infectious diseases

Members of the public are advised to maintain strict personal and environmental hygiene at all times for personal protection against infection and prevention of the spread of the respiratory diseases in the community.

- Perform hand hygiene frequently. Wash hands with liquid soap and water when soiled, or use 70 to 80% alcohol-based handrub as an alternative when hand washing facilities are unavailable;
- Maintain good indoor ventilation;
- When having respiratory symptoms, wear a surgical mask, refrain from work or school, avoid going to crowded places and seek medical advice promptly;
- Build up good body immunity by having a balanced diet, regular exercise, adequate rest, avoiding overstress, do not smoke and avoid alcohol consumption; and
- Get seasonal influenza vaccination (except for those with known contraindications).

Update on Food Poisoning

Reported by Mr. Ian Siu-kiu YAU, Scientific Officer; and Dr. Taron LOH, Senior Medical and Health Officer, Enteric and Vector-Borne Disease Section, Surveillance Division, Communicable Disease Branch, CHP.

Situation in 2023

Food poisoning is a notifiable disease under the Prevention and Control of Disease Ordinance (Cap. 599) in Hong Kong.

Throughout January 1 till March 11 2023, the Centre for Health Protection (CHP) of the Department of Health recorded a total of 99 suspected outbreaks of food poisoning affecting a total of 343 persons, while only seven food poisoning outbreaks affecting 16 persons were recorded during the same period last year. Based on information available, persons affected in 99 food poisoning outbreaks recorded in 2023 (size of outbreak ranged from two to 17) had male-to-female ratio of around 0.83, age ranging from one to 73 years, while four of them (1.2%) required hospitalisation and all have recovered. In terms of settings, 86 outbreaks (87%) were associated with food premises, while eight (8%) and four (4%) were associated with domestic settings and institutions respectively. In terms of causative agents, 69% of outbreaks were attributed to norovirus, followed by *Vibrio parahaemolyticus* (21%), *Salmonella* species (9%) and *Clostridium perfringens* (4%)*.

Among the 67 outbreaks attributed to norovirus, epidemiological investigation revealed that 62 outbreaks (93%) were related to consumption of raw oysters, affecting a total of 212 persons (86, 91 and 35 in January, February and March, as of March 11. respectively). Norovirus was detected in stool of affected persons in 12 clusters. The largest cluster comprising ten outbreaks affecting 41 persons (19 male and 22 female, aged 22 to 64) notified to the CHP between January 17 and 20 was traced to a buffet restaurant where raw oysters were identified to be the incriminated food items.

Upon receiving notification of these food poisoning outbreaks, the Centre for Food Safety (CFS) of the Food and Environmental Hygiene Department conducted investigations at the restaurants concerned immediately. Investigation included field investigation to the food premises and conduction of source tracing of the concerned raw oysters. A total of nine samples of raw oysters from the same catchment areas were collected from the concerned food premises for norovirus PCR testing and five samples of oysters were collected for testing of *Vibrio parahaemolyticus* and the results were all negative. That said, source tracing investigation and epidemiological findings of some epi-linked raw oysters' food poisoning outbreaks could be traced to a common catchment area or a processing plant from exporting countries. For the sake of prudence, the CFS issued press releases in January 2023 to temporarily suspend the import into and sale within Hong Kong of all raw oysters harvested in the affected catchment area or processing plant in Ireland and France respectively. CFS has also instructed the local suppliers and restaurants concerned to stop supplying and selling the affected raw oysters immediately.

Review of food poisoning outbreaks in past ten years (2013 – 2022)

Between 2013 and 2022, the CHP recorded a total of 2,176 outbreaks of food poisoning affecting 8,808 persons, with 652 (7.4%) requiring hospitalisation. The median number of persons affected was three, and the largest outbreak reported in 2016 affected 149 persons associated with the consumption of cooked garlic and honey beef, with *Clostridium perfringens* as the suspected causative agent. The annual number of persons affected during the period showed a decreasing trend, while that of outbreaks remained relatively stable, ranging from 133 to 316 (Figure 1). The decrease in the past few years might be related to various social-distancing restrictions, change of dining habits and heightened awareness of hygiene due to the COVID-19 pandemic.

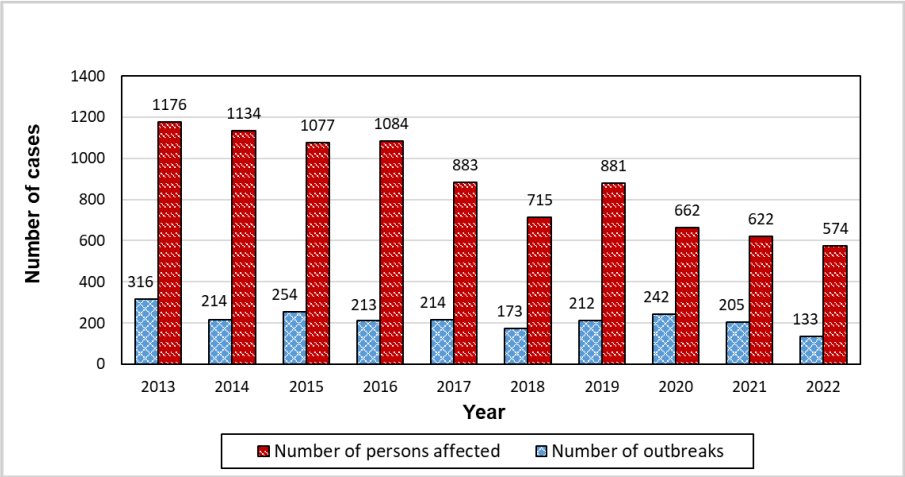

Figure 1 – Number of food poisoning outbreaks and number of persons affected from 2013 to 2022

Review of surveillance data between 2013 and 2022 also showed a seasonal pattern of food poisoning cases in Hong Kong with more outbreaks recorded during May to August (Figure 2). This could be due to the higher temperatures and humidity during the summer months, which can increase the risk of bacterial growth in food (common bacteria causing food poisoning, such as *Salmonella* species, *Vibrio parahaemolyticus* and *Staphylococcus aureus*, grow more readily in summer months)[1]. On the other hand, norovirus, another common causative agent, is more active in the winter[2], resulting in a relatively high number of persons affected during January and February (Table 1).

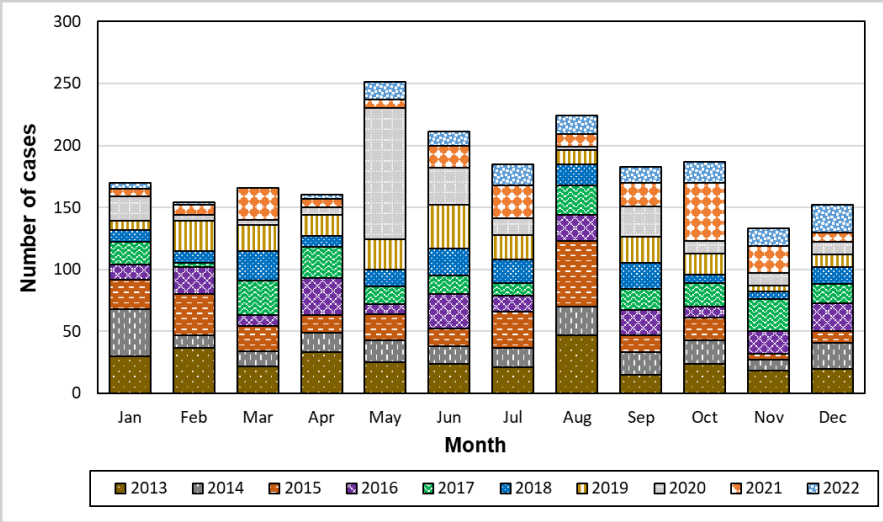

Figure 2 – Number of food poisoning outbreaks, by year and month from 2013 to 2022

Table 1 – Number of persons affected in food poisoning outbreaks, by year and month from 2013 to 2022.

Month / Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Total
2022	12	4	0	5	39	35	118	71	38	98	66	88	**574**
2021	18	29	72	16	26	52	70	24	60	149	71	35	**622**
2020	72	13	10	18	254	89	46	4	74	30	24	28	**662**
2019	26	216	90	62	74	90	86	26	60	102	12	37	**881**
2018	86	56	89	45	44	67	61	44	97	31	57	38	**715**
2017	55	11	99	71	81	33	138	117	66	54	93	65	**883**
2016	196	96	32	99	30	132	51	199	73	30	71	75	**1084**
2015	85	145	76	72	66	39	102	168	173	113	13	25	**1077**
2014	222	30	36	62	57	137	106	74	61	143	71	135	**1134**
2013	99	146	67	99	84	82	68	216	43	70	84	118	**1176**
Total	**871**	**746**	**571**	**549**	**755**	**756**	**846**	**943**	**745**	**820**	**562**	**644**	**8808**

The majority of food poisoning cases could not be confirmed as no food remnant or sample was available for laboratory investigation. Among the 2,176 outbreaks, non-typhoidal *Salmonella* was suspected or confirmed to be the most common causative agent, accounting for 728 outbreaks (33%) which affected a total of 2,881 persons, followed by *Vibrio parahaemolyticus* (29%), norovirus (11%) and *Bacillus cereus* (6%)*. Epidemiological investigation found that 74% of outbreaks occurred at food premises, followed by 20% in domestic setting, and about 2% in institutions (e.g. schools and residential homes). Available information on the contributing factors suggested contaminated raw food and inadequate cooking were the primary contributing factors for the outbreaks.

**Some outbreaks might involve more than one causative agents.*

Health tips for preventing food poisoning

Food poisoning is a common illness that occurs when contaminated food or water is consumed. According to the World Health Organization (WHO), an estimated 600 million people worldwide fall ill each year due to food poisoning, with 420,000 deaths reported annually[3].

Food poisoning can be caused by various agents, including bacteria, viruses, parasites, or toxins in biochemical or chemical in nature[3]. Examples of causative agents include *Salmonella, Staphylococcus aureus*, ciguatera fish poisoning, pesticide, etc. While most cases of food poisoning are mild and resolve on their own, severe cases can lead to hospitalisation, long-term health complications, or even death; seeking prompt medical attention is crucial when food poisoning is suspected[4].

To prevent food poisoning and foodborne illnesses, members of the public are advised to adopt the "Five Keys to Food Safety" advocated by the WHO. These five simple and effective keys for safe food handling are[5]:

1. Choose (Choose safe raw materials);
2. Clean (Keep hands and utensils clean);
3. Separate (Separate raw and cooked food);
4. Cook (Cook thoroughly); and
5. Safe Temperature (Keep food at safe temperature).

References

[1] KOVATS, R. S., EDWARDS, S. J., HAJAT, S., et al. The effect of temperature on food poisoning: a time-series analysis of salmonellosis in ten European countries. Epidemiology & Infection. Cambridge University Press; 2004; 132(3), 443-453. doi:10.1017/S0950268804001992.

[2] Centers for Disease Control and Prevention. Norovirus Worldwide. Available at: https://www.cdc.gov/norovirus/trends-outbreaks/worldwide.html#:~:text=Norovirus%20illnesses%20and%20outbreaks%20are,norovirus%20may%20be%20less%20seasonal. Accessed on 10 March 2023.

[3] World Health Organization. Food Safety. Available at: https://www.who.int/news-room/fact-sheets/detail/food-safety. Accessed on 9 March 2023.

[4] Centre for Health Protection. Food Poisoning. Available at: https://www.chp.gov.hk/en/healthtopics/content/24/43.html. Accessed on 9 March 2023.

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NEWS IN BRIEF

Three sporadic cases of psittacosis

On March 3 and March 17, CHP recorded three sporadic cases of psittacosis residing in different districts. The first case affected a 60-year-old housewife with hypertension, diabetes and hyperlipidemia who lived in Wong Tai Sin. She presented with cough with blood stained sputum, headache and myalgia on February 20, followed by fever and shortness of breath on February 23 and 24 respectively. She was admitted to a public hospital the following day where her chest X-ray was suggestive of pneumonia. She was later admitted to ICU and was intubated due to progressive respiratory distress. Her condition gradually improved after antibiotics treatment. The tracheal aspirate collected on February 27 tested positive for *Chlamydia psittaci* DNA by polymerase chain reaction (PCR). There was no travel history and the patient kept no pets. She volunteered that wild pigeon excreta had been found in balcony outside her kitchen. The patient became stable and was discharged on March 14.

The second case affected a 69-year-old housewife who had history of asthma, atrial fibrillation and goitre and was living in Yuen Long with her spouse. The lady sought treatment from traditional Chinese medicine practitioner after she developed fever, cough with sputum, shortness of breath and malaise on March 6. Due to persistence of symptoms, she went to a public hospital where she was diagnosed with pneumonia. Sputum collected on March 9 was tested positive for *Chlamydia psittaci* DNA by PCR. She recalled seeing pigeons outside living room windows at home, but had no direct contact with their excreta or carcasses of animals. Her household contact remained asymptomatic and the patient was discharged on March 13.

The third case affected a 70-year-old retired but ambulatory female who lived alone in Wan Chai. She presented with headache since February 26 which later turned into a febrile illness. The lady initially received herbal treatment from a Chinese medical practitioner, but she was later admitted to a public hospital on March 8 due to dizziness and weakness, where she was diagnosed with pneumonia. Sputum collected on March 9 was tested positive for *Chlamydia psittaci* DNA by PCR. The patient had no travel history. She reported seeing many birds in a park on way she paid daily visit to Southorn Playground in Wan Chai, but she had no direct contact with the excreta or carcasses of animals. Her condition improved and she was discharged on March 15.

A local case of human myiasis

On March 6, 2023, CHP recorded a case of human myiasis affecting a 64-year-old man with diabetes residing in Sham Shui Po district. He presented with fever and wound pain over his chronic right leg ulcer and was admitted to a public hospital on March

1, 2023. Upon admission maggots were found in the wound which were subsequently identified as larvae of *Chrysomya bezziana*. He was treated with antibiotics and surgical debridement of the wound. The patient lived with his sister who was asymptomatic and did not travel during the incubation period. Health advice on personal and environmental hygiene was given to the patient.

A sporadic case of Creutzfeldt-Jakob disease

On March 8, 2023, CHP recorded one case of sporadic Creutzfeldt-Jakob disease (CJD), affecting a 64-year-old man with underlying illnesses. He presented with decreased social response, slurred speech and left upper limb numbness since February 23. Difficulty walking and drooling of saliva were also noted. He was admitted to a public hospital on February 25. He was found to have rapidly progressive dementia, rigidity and akinetic mutism. Findings of EEG were compatible with CJD. He is currently hospitalised and in serious condition. He had no known family history of CJD. No risk factors for either iatrogenic or variant CJD were identified. He was classified as a probable case of sporadic CJD.

Two local sporadic cases of listeriosis

On March 10, 2023, CHP recorded a sporadic case of listeriosis affecting a 64-year-old immunocompromised woman who had end stage breast cancer and was receiving chemotherapy. She lived in Sham Shui Po. She had presented with fever and myalgia since March 1. She was noted to have decreased general condition on March 6 and was admitted to a public hospital on the same day. Her blood culture collected on March 6 yielded *Listeria monocytogenes*. She was treated with antibiotics but her condition deteriorated and succumbed on March 8. The cause of death was breast cancer. She had no travel history during the incubation period. Her family did not recall her consumption of any high risk food. No secondary cases were identified.

On March 16, 2023, CHP recorded another sporadic case of listeriosis affecting a 92-year-old female with no obvious immunocompromised condition. She lived in North District. She was admitted to a public hospital on March 4 for low back pain. She developed fever and vomiting in ward on March 14. Her blood culture collected on the same day yielded *Listeria monocytogenes*. She was treated with antibiotics and her condition has been stable. During incubation period, she had no travel history nor history of consumption of any high risk food. No secondary cases were identified.

Two sporadic cases of scrub typhus

On March 13, 2023, CHP recorded a sporadic case of scrub typhus affecting a 32-year-old woman with good past health. She was a housewife and presented with fever since Feb 1. She consulted a general practitioner twice for persistent fever and skin rashes and was referred to a private hospital on Feb 5 with admission on the same day. She was seen by both specialists in dermatology and infectious disease and the clinical impression was viral or atypical bacterial infection. The fever and skin rashes subsided since Feb 9 after antibiotics treatment with rocephin and doxycycline. She remained stable and was discharged on Feb 11. Blood collected on Feb 6 and Feb 20 showed a 4-fold rise in *Orientia Tsutsugamushi* antibody. She lived in rural area in Tai Po with her family and recalled history of being bitten by mites when she visited the parks and markets in her neighbourhood before onset. Her home contacts remained asymptomatic. She had no travel history during the incubation period and did not keep any pets at home. Pest Control Advisory Section of Food and Environmental Hygiene Department (FEHD) was informed on March 13 and has initiated vector surveys; FEHD would conduct vector control work as appropriate.

On March 15, 2023, CHP recorded another sporadic case of scrub typhus affecting a 34-year-old man with good past health. He was a bank staff and presented with fever, maculopapular rash over four limbs, headache, myalgia, lymphadenopathy and an eschar over the right posterior upper arm since Feb 14. He attended a public hospital and was admitted same day on Feb 20. He was treated with doxycycline. He remained stable and was discharged on Feb 24. Blood collected on Feb 20 and Mar 3 showed a 4-fold rise in *Orientia tsutsugamushi* antibody. He engaged in mountain running weekly. He did not use insect repellents and mostly only wore short pants when mountain running. He did not recall insect bites. He lived alone in Sham Shui Po. He had no travel history during the incubation period and did not keep any pets at home. Pest Control Advisory Section of FEHD was informed on March 16 and has initiated vector surveys; FEHD would conduct vector control work as appropriate.