

# Communicable Diseases

## WATCH



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### FEATURE IN FOCUS

#### Update on global and local situation of mpox

*Reported by Dr Karen KW CHEUNG, Medical and Health Officer and Dr Wenhua LIN, Senior Medical and Health Officer, Communicable Disease Surveillance and Intelligence Section, Surveillance Division, Communicable Disease Branch, CHP.*

Mpox (Monkeypox) is a zoonosis caused by monkeypox virus. Firstly reported in humans in 1970, most reported mpox outbreaks occurred in Central and West Africa. Mpox can spread from person to person or occasionally from animals to people. While the infection is usually a self-limited disease with symptoms such as fever, intense headache, swollen lymph nodes and rash, severe conditions could occur, more commonly among children. The case fatality rate (CFR) in previous outbreaks in Africa varied between 1% and 10%.

#### Global situation

Since May 2022, cases of mpox have been reported to the World Health Organisation (WHO) from different countries in widely disparate geographical areas resembling a multi-country outbreak. With the exception of countries in the African Region, the outbreak primarily affected men who identify themselves as gay, bisexual and other men who have sex with men (MSM), and those who have reported recent sex with one or multiple partners. The number of cases increased rapidly from 3,040 cases from 47 countries as of early May 2022 (since January 1, 2022) to 14,533 probable and laboratory-confirmed cases from 72 countries across all six WHO Regions reported to WHO as of July 20, 2022<sup>1</sup>. The WHO, on July 23, 2022, declared this outbreak a public health emergency of international concern (PHEIC). Between January 1, 2022 and May 16, 2023, a total of 87,479 laboratory-confirmed cases of mpox and 140 deaths have been reported to WHO from 111 countries/territories/areas in all six WHO Regions (CFR: 0.16%)<sup>2</sup>.

Subsequent to global mobilisation and rapid response of most affected areas, a significant and steady decline in the number of reported cases was recorded. In recent months, weekly number of cases has declined substantially from the global peak of 7,576 cases observed in the week of August 8, 2022 to an average of 119 cases between February 20 and May 14, 2023 (Figure 1). WHO announced that the multi-country outbreak of mpox no longer constituted a PHEIC on May 11, 2023. While the WHO still assessed the global risk of mpox transmission as moderate, the risk was assessed to be moderate in the African Region, Eastern Mediterranean Region, European Region and Region of the Americas, and low in the South-East Asia Region and Western Pacific Region.

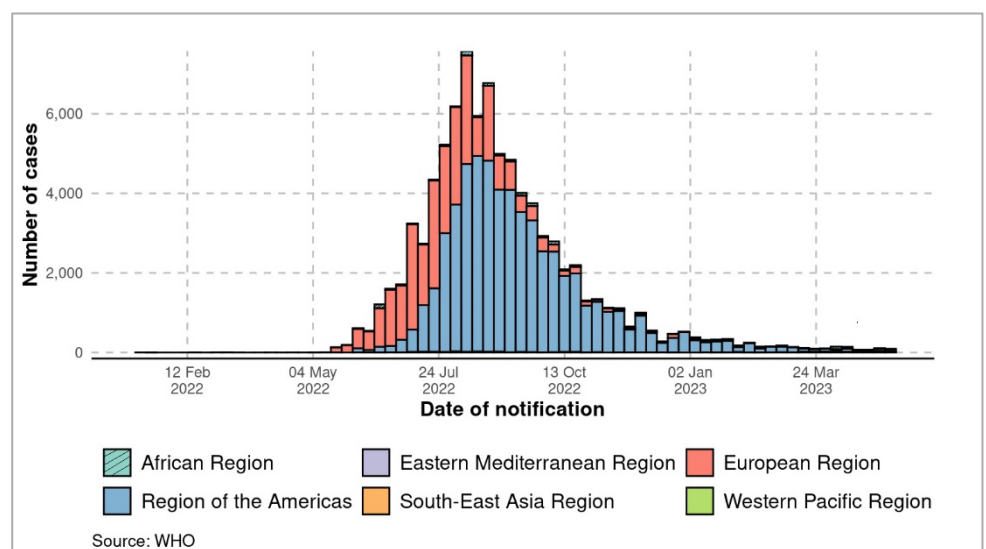


Figure 1 – Epidemic curve (January 1, 2022 to May 14, 2023) shown for cases reported up to May 14, 2023<sup>2</sup>.

According to the latest data of WHO, the multi-country mpox outbreak continued to affect young males (96.2%) with a median age of 34 years and 84.1% of cases had self-identified as gay, bisexual and other MSM. Among cases with known HIV status, 52.3% were HIV-positive. Of all settings of likely exposure, the most common was in the party setting with sexual contacts. The most common symptom was any rash, reported in 81% of cases, followed by fever (59.2%), and systemic or genital rash (47.5% and 44.0% respectively)<sup>3</sup>.

While the mpox cases declined globally, the Western Pacific Region reported more cases that accounted for 36.4% of all the new cases reported to WHO in the past 4 weeks worldwide. As of May 16, 2023, more than 520 confirmed cases have been reported from 12 countries and areas in the Western Pacific Region without any death reported (Table 1). The number of cases has been increasing in Japan, Taiwan and Republic of Korea with ongoing local transmission recorded<sup>4,5,6</sup>.

### Local situation

The Government has listed monkeypox as a scheduled infectious disease on June 10, 2022. By May 18, 2023, the Centre for Health Protection (CHP) of the Department of Health recorded a total of seven cases of mpox, with the first case confirmed in September 2022 and latest case confirmed on May 10, 2023. All affected patients were Chinese males, aged from 25 to 59 years with the median age of 34 years. While one case reported to be heterosexual, the remaining six (85.7%) were self-identified as MSM. Two out of the seven (28.6%) had history of mpox vaccination and were known HIV positive, while the other 5 cases were unvaccinated. All cases presented with rash, with genital rash and generalized rash accounting for 57.1% and 42.9% respectively. Other symptoms included lymphadenopathy (42.9%), fever (28.6%), myalgia (28.6%) and oral ulcer (28.6%). All have recovered. All the seven cases had high risk behaviors during the incubation period. Among them, there were three imported cases (from the United States, Japan and Taiwan/ Republic of Korea respectively), one possible local case with travel history of Shenzhen during the incubation period, and three locally acquired cases. There were two epidemiologically-linked clusters with each involving two patients.

Subsequent to the confirmation of the first case, the Government activated the alert response level under relevant preparedness and response plan and implemented a number of preventive measures including enhanced surveillance, strengthening health surveillance measures at boundary control points, quarantine preparedness and hospital preparedness. The mpox vaccination programme for high-risk target groups commenced in October 2022, under which target groups could receive vaccination on a voluntary basis. Examples of target groups include people at high risk sexual practices (e.g. multiple sexual partners, sex workers, history of sexually transmitted infection within the past 12 months), healthcare workers responsible for caring of mpox patients and laboratory personnel working with zoonotic pox viruses. By May 14, 2023, over 9,000 doses of mpox vaccine have been administered.

Despite the lifting of PHEIC status, mpox is still an infectious disease with public health significance. In Hong Kong, some of the recent cases had conducted high risk sexual practices in the local community, which reflected risk of spread of mpox disease locally. Members of the public are urged to heighten vigilance against mpox and avoid close physical contact with persons suspected of contracting the disease. Sexually active people are advised to have safer sex and maintain a mutual monogamous relationship with an uninfected partner and avoid casual sex. While proper use of condoms could reduce the risk of sexually transmitted infections in general, condoms alone may not prevent all exposures to mpox since the rash can occur on other parts of the body. CHP has also set up an mpox telephone hotline (2125 2373) for those who suspect or are concerned that they have had high-risk contact with confirmed patients to make enquiries and receive relevant health advice. High-risk individuals are also urged to receive mpox vaccination early. For more information on mpox and related vaccination programme, please visit the CHP's thematic webpage at [www.chp.gov.hk/en/features/105683.html](http://www.chp.gov.hk/en/features/105683.html).

Table 1 – Mpox cases reported by countries and areas in the Western Pacific Region\*

Country		Number of Cases (From Jan 1, 2022 to May 16, 2023)	Number of Cases in the past 12 weeks (From Feb 20 to May 14, 2023)
Japan		135	115
China	Taiwan	91	75
	Hong Kong	7	5
	Mainland	1	0
Republic of Korea		75	71
Singapore		25	4
Australia		145	1
Philippines		5	1
Guam		1	0
New Caledonia		1	0
New Zealand		41	0
Viet Nam		2	0

\* Source of data mainly from the WHO<sup>2</sup>, while data related to Taiwan was taken from published information from the Taiwan Centers for Disease Control, with the latest one dated May 16, 2023. [https://www.cdc.gov.tw/Bulletin/Detail/yrXY2\\_Isj3\\_UGevVmjQcVA?typeid=9](https://www.cdc.gov.tw/Bulletin/Detail/yrXY2_Isj3_UGevVmjQcVA?typeid=9)

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## Latest situation of human infection of rat hepatitis E virus in Hong Kong

*Reported by Ms. Poon Ho-yea Chloe, Scientific Officer; and Dr. Taron LOH, Senior Medical and Health Officer, Enteric and Vector-Borne Disease Section, Surveillance Division, Communicable Disease Branch, CHP.*

Hepatitis E is a liver disease caused by Hepatitis E virus (HEV). The usual HEV causing human infection belongs to *Orthohepevirus A* (HEV-A). Apart from HEV-A, the *Orthohepevirus* genus has three other species, namely *Orthohepevirus B* that circulates in birds, *Orthohepevirus C* (HEV-C) in rats and ferrets, and *Orthohepevirus D* in bats<sup>1</sup>. HEV-C, also known as rat HEV, shares only 50% to 60% nucleotide identity with HEV-A such that it was previously not considered to have the ability to infect human<sup>2,3</sup>. In December 2018, the Department of Microbiology of the University of Hong Kong (HKU) published the first report of human case of rat HEV infection<sup>4</sup>.

HEV-A is mainly transmitted through the faecal-oral route, for example, following faecal contamination of drinking water. Foodborne transmission of HEV-A is also possible given the virus has been detected in pig livers<sup>5,6</sup>. As for HEV-C, there is no scientific information to determine the exact mode of transmission to human at the moment<sup>7</sup>. Possible routes of transmission include ingestion of food/ water and exposure to environment/ objects contaminated by rodents or their excreta, and direct contact with rodents or their excreta.

Most hepatitis E infections are asymptomatic or self-limiting. However, HEV infection in high-risk individuals such as elderly with major underlying illnesses (especially transplant patients), pregnant women, people with chronic liver diseases and glucose-6-phosphate dehydrogenase (“G6PD”) deficiency may develop severe illness<sup>8,9</sup>. As for rat hepatitis E infection, currently there is insufficient literature on its clinical features, but some suggested that it is clinically indistinguishable with general HEV infection<sup>10</sup>.

### Local situation

Viral hepatitis (including hepatitis E) is a statutorily notifiable disease in Hong Kong. All medical practitioners are required to report suspected or confirmed cases of hepatitis E to the Centre for Health Protection (CHP) of the Department of Health (DH) for investigation and follow-up actions. For the past 10 years, the annual number of hepatitis E cases ranged from 43 to 96 cases (median 82 cases) (Figure 1). There has been no apparent upsurge of hepatitis E infection observed since the first report of human rat hepatitis E infection in 2018.

As of May 20, 2023, a total of 19 cases of human infection of rat HEV have been recorded by the CHP since 2018 (Figure 1). The 19 cases involved 15 male and four female aged between 17 and 89 years (median 67 years). All cases had underlying illnesses, with 14 of them (73.7%) had immunocompromised conditions. Nearly half of the patients (47.4%) were asymptomatic, while the remaining patients presented with typical viral hepatitis symptoms such as anorexia (26.3%), malaise (26.3%), fever (15.8%) and jaundice (10.5%). Among them, three patients passed away due to unrelated causes.

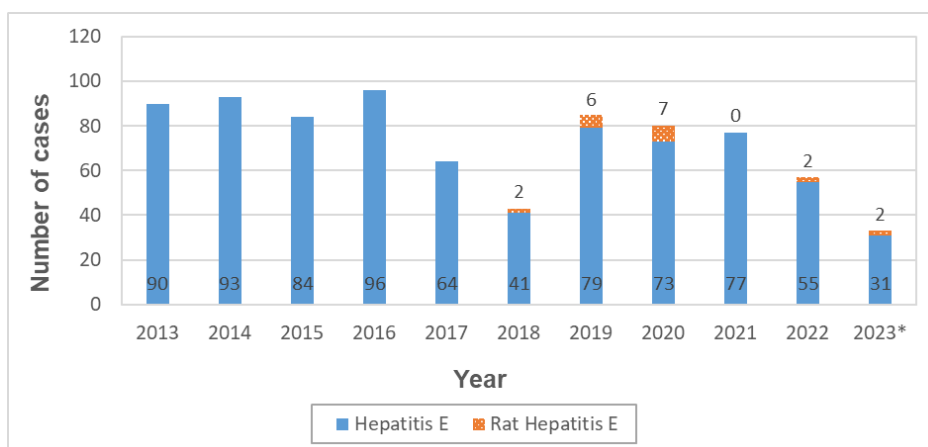


Figure 1 – Number of hepatitis E and rat hepatitis E cases since 2013 (as of May 20, 2023)

According to the CHP's epidemiological investigations, the 19 patients resided in eight different districts in Hong Kong, including Wong Tai Sin (five cases), Kowloon City (four cases), Kwai Tsing (two cases), Southern (two cases), Tuen Mun (two cases), Tai Po (two cases), Kwun Tong (one case) and Yuen Long (one case). Majority (84.2%) had no travel history during the incubation period; one patient had travelled to Taiwan and Korea and the other one to Shenzhen regularly, and there was one patient with unknown travel history due to loss to follow-up. None of the patients reported to have consumed raw pork or pork offal, but three patients reported contacting raw pork at wet market or during cooking process. All patients did not recall having direct contact with rodents or their excreta, but three reported having seen rodents or suspected rodent excreta in the vicinity of their residence, workplace or restaurant visited. Investigations by the CHP revealed that they were all sporadic cases with no epidemiological linkage, and no symptomatic home contacts were identified.

### Prevention and control measures

The CHP will conduct epidemiological investigation for all notified viral hepatitis E cases and implement relevant control measures if possible sources of infection are ascertained. For all cases of human infection with rat HEV, the CHP would also inform the Pest Control Advisory Section of the Food and Environmental Hygiene Department (FEHD) to carry out rodent survey and control measures as deemed necessary.

With the discovery of the first human case of rat HEV infection, HKU has also reported rat HEV infection in street rats which were caught as early as in 2012<sup>4</sup>. Therefore, rodent control is important in the prevention and control of human rat hepatitis E infection. The Government has all along attached great importance to anti-rodent work, including continued territory-wide anti-rodent campaign and strategic anti-rodent operations in target areas spearheaded by the FEHD. To target rat hepatitis E infection in rats, FEHD has on-going collaboration with the HKU's team to screen for rat HEV in rat samples captured in Hong Kong. In 2022, out of the 175 rats screened, 15 rats (8.6%) were tested positive for rat HEV RNA. Follow-up rodent control operations had been conducted in the surrounding areas of location where rat HEV positive rodents were captured.

To prevent rat HEV infection, members of the public are urged to maintain good personal, food and environmental hygiene, and to actively participate in rodent prevention and control work. The CHP will continue its concerted efforts with other government bureaux/departments, relevant stakeholders and the community in disease notification and surveillance, source investigation, rodent monitoring and infestation control.



### Tips for prevention of rat HEV infection

To prevent rat HEV infection, members of the public should maintain good personal, food and environmental hygiene. They should wash hands thoroughly before eating, store food properly or in the refrigerator, not leave food at room temperature for a long time, and use 1:99 diluted household bleach for general household cleaning and disinfection. High-risk individuals, such as elderly persons with a major underlying illness (especially those who have undergone organ transplantation), pregnant women, patients with chronic liver disease and patients with G6PD Deficiency, may develop a serious illness if infected with rat HEV, so they should exercise extra caution.

The Five Keys to Food Safety should be adopted when handling food, i.e. Choose (choose safe raw materials), Clean (keep hands and utensils clean), Separate (separate raw and cooked food), Cook (cook thoroughly) and Safe Temperature (keep food at a safe temperature), to prevent food-borne diseases.

Rodents (such as rats) can transmit multiple diseases to humans directly and indirectly. Members of the public should stay vigilant and are advised to adopt the following measures:

- ✦ Eliminate sources of food and nesting places for rodents in the living environment;
- ✦ Store food in covered containers and handle pet food properly to prevent it from becoming food for rodents;
- ✦ Store all refuse and food remnants in dustbins with well-fitted covers. Dustbins must be emptied at least once a day;
- ✦ Keep premises, especially refuse rooms and stairways, clean. Avoid accumulation of articles; and
- ✦ Inspect all flower beds and pavements for rodent infestation regularly.

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## NEWS IN BRIEF

### Three probable cases of sporadic Creutzfeldt-Jakob disease

Centre for Health Protection (CHP) of the Department of Health recorded three possible cases of sporadic Creutzfeldt-Jakob disease (CJD) on April 18, May 12 and 19, 2023 respectively.

The first case affected a 75-year-old man with hypertension, hyperlipidemia and benign prostate hyperplasia living in Eastern District. He first presented with poor memory since August 2022, which worsened significantly since February 2023. He was admitted to a public hospital on March 16, 2023 and was found to have rapid cognitive decline, gait disturbance and akinetic mutism. Findings of MRI were compatible with CJD. He is currently hospitalised and in stable condition. He had no known family history of CJD, and no risk factors for either iatrogenic or variant CJD had been identified so far. He was classified as a possible case of sporadic CJD.

The second case affected a 59-year-old man with unremarkable past health living in Kwun Tong. He initially presented with blurring of vision in early October 2022. He subsequently developed unsteady gait and slurring of speech. He was brought to Accident and Emergency Department (AED) of a public hospital for agitation on November 18, 2022 and was admitted for management. After admission, he was found to have rapid progressing dementia, myoclonus, visual disturbance, pyramidal dysfunction and akinetic mutism. The findings of cerebrospinal fluid testing was compatible with CJD. He deteriorated and eventually succumbed on January 16, 2023. No risk factors for either iatrogenic or variant CJD were identified. He was classified as a possible case of sporadic CJD.

The third case affected a 58-year-old woman with history of paroxysmal atrial fibrillation, hyperlipidaemia, obstructive sleep apnoea, insomnia and depression. She presented with memory impairment and disorientation in June 2021. She attended a private hospital with investigation done. MRI findings were compatible with CJD. In December 2021, she attended a public hospital with lumbar puncture done. Cerebrospinal fluid testing was compatible with CJD. She later developed gait disturbance, akinetic mutism and myoclonus. She ran a downhill course and succumbed on February 2, 2023. She had no known family history of CJD. No risk factors for iatrogenic or variant CJD had been identified. She was classified as a possible case of sporadic CJD.

### Two sporadic cases of psittacosis

CHP recorded two sporadic cases of psittacosis on April 28 and May 5, 2023 respectively.

The first case affected a 57-year-old male kitchen worker who was a hepatitis B carrier and had history of hypertension and diabetes. He lived with his wife in Kwun Tong. He presented with fever, cough with sputum, poor appetite and diarrhoea on April 18 and shortness of breath and transient loss of consciousness on April 19. He attended AED of a public hospital on the same day and was admitted for management of pneumonia. He subsequently developed septic shock requiring intubation and intensive care. He recovered after treatment with antibiotics and was discharged on April 29. The tracheal aspirate collected on April 22 tested positive for *Chlamydia psittaci* DNA by polymerase chain reaction (PCR). He had no travel history during the incubation period. He did not report any high risk exposure such as contact with birds. His household contact remained asymptomatic.

The second case affected a 66-year-old retired man with history of psoriasis and polycythaemia. He lived alone in Kwun Tong. He presented with fever, cough and shortness of breath on April 25. He was found unconscious at home in the evening on the same day. He was sent to AED of a public hospital and was admitted for management of pneumonia. His condition subsequently deteriorated and required intubation and intensive care. His condition improved after treatment with antibiotics. The tracheal aspirate collected on April 26 tested positive for *Chlamydia psittaci* DNA by PCR. He travelled to Guangdong with family from March 30 to April 10. His family members remained asymptomatic. During the incubation period, he did not report high risk exposures such as contact with birds. He is currently in stable condition.

### Two sporadic cases of listeriosis

CHP recorded two sporadic cases of listeriosis on May 5 and May 8, 2023 respectively.

The first case affected an 89-year-old woman with history of hypertension, hyperlipidaemia, chronic kidney disease, anaemia of chronic illness and rectal prolapse. She lived with her son in Kwun Tong. She presented with cough with sputum, decreased appetite and responsiveness since mid-April 2023. She developed fever on April 28. She was brought to AED of a public hospital on April 29 and was admitted for management. Her condition deteriorated rapidly despite antibiotics and fluid resuscitation. She eventually succumbed on May 3. Her blood collected on April 30 was cultured positive for *Listeria monocytogenes*. The cause of death was *Listeria* septicaemia. She had no travel history during the incubation period. She had no exposure to animals or their excreta. Her family members did not recall her having high-risk food consumption. Her household contact remained asymptomatic.

The second case affected a 78-year-old man with history of diabetes with neuropathy and retinopathy, hypertension, hyperlipidaemia, obesity, gout, benign prostate hypertrophy, and history of pituitary tumour on hormonal replacement and steroid. He lived with his wife and daughter in Kwun Tong. He had watery diarrhoea since April 6 and was admitted to hospital during April 13 – 27, 2023. He developed fever, cough with sputum on May 5. He attended AED of a public hospital on the same day and was admitted for management. His condition improved after treatment with antibiotics. His blood collected on May 6 was cultured positive for *Listeria monocytogenes*. He had no travel history during the incubation period. He did not recall high-risk food consumption. His household contacts remained asymptomatic.

### A sporadic case of necrotising fasciitis caused by *Vibrio vulnificus* infection

CHP recorded a sporadic case of necrotising fasciitis caused by *Vibrio vulnificus* infection in Kwun Tong district on May 19, 2023.

The case affected a 73-year-old retired man with multiple chronic diseases including diabetes and adrenal insufficiency. He presented on May 17 with decreased general condition, fever and erythema of the left lower limb and was admitted to a public hospital on the same day. The clinical diagnosis was necrotising fasciitis of the left lower limb. Emergency debridement with left above-knee amputation was done. Post-operatively, he required treatment with antibiotics and intensive care. His condition failed to improve and he passed away on May 19. Left leg fascia tissue culture grew *Vibrio vulnificus*. During the incubation period, he had not travelled outside Hong Kong. His family members recalled that he would visit the wet market daily but there was no known history of injury or wounds. He would handle raw seafood during meal preparation but did not consume any uncooked seafood.

### The 20th Tripartite Meeting strengthens co-operation against communicable diseases in the Bay Area

The 20th Tripartite Meeting on Prevention and Control of Communicable Diseases was successfully held in Macao on April 20 and 21, 2023. Representatives from health authorities of Guangdong, Hong Kong and Macao shared the experiences in the prevention and control work on COVID-19 in the past three years, and exchanged views on clinical treatment after infection and the future prevention and control plan. There were also in-depth and fruitful discussions on combating other public health issues faced by the three places such as seasonal influenza, antimicrobial resistance and viral hepatitis. Guangdong, Hong Kong and Macao reached consensus at the meeting in various areas of co-operations in relation to communicable disease prevention and control with a view to further improving health levels in the Bay Area.



Photo 1 - Participants at the 20th Tripartite Meeting on Prevention and Control of Communicable Diseases.