

Communicable Diseases

WATCH



衛生防護中心
Centre for Health Protection



衛生署
Department of Health

EDITORIAL BOARD **Editor-in-Chief** Dr SK Chuang **Members** Dr KH Kung / Dr Tony Ng / Dr Hong Chen / Dr Taron Loh / Dr Wenhua Lin / Jason Chan / Doris Choi / Chloe Poon **Production Assistant** Joyce Chung. This monthly publication is produced by the Centre for Health Protection (CHP) of the Department of Health, 147C, Argyle Street, Kowloon, Hong Kong **ISSN** 1818-4111 **All rights reserved** Please send enquiries to cdsurinfo@dh.gov.hk.

FEATURE IN FOCUS

A cluster of invasive Group B Streptococcus ST283 cases

Reported by Dr Wong Hoi-kei, Senior Medical and Health Officer, Epidemiology Division, Communicable Disease Branch, CHP

Background of invasive Group B Streptococcus and ST283

Group B Streptococcus (GBS), also known as *Streptococcus agalactiae*, is widely distributed among diverse species including humans, mammalian animals, amphibians, reptiles and fishes. GBS is found in 20% to 40% of healthy adults and colonises in human gastrointestinal and genitourinary tract as commensals.

GBS has 10 capsular types, of which Sequence Type 283 (ST283) belongs to serotype III-4. ST283 is among the more virulent strains of GBS and causes invasive diseases in many otherwise healthy adults or adults with relatively few underlying comorbidities. Presence of ST283 was reported in freshwater fish in Southeast Asian countries with prevalence reported to be ranging from 12.5% to 100%¹.

In 2015, ST283 caused a major invasive foodborne outbreak in Singapore. Epidemiological investigation showed that the outbreak had a strong link with the consumption of raw freshwater fish including raw Asian bighead carp and snakehead. Singapore has subsequently banned the use of raw freshwater fish in all ready-to-eat raw fish dishes. Thereafter, invasive GBS ST283 disease has also been reported in other countries and areas in and around Southeast Asia.

In 2021, there had been a marked upsurge in invasive GBS ST283 cases in Hong Kong since September (orange arrow in Figure 1). Epidemiological investigation revealed handling raw freshwater fish and consuming undercooked freshwater fish as possible risk factors. In response, the Centre for Health Protection (CHP) of the Department of Health actively engaged with stakeholders to enhance public awareness and education, and the Food and Environmental Hygiene Department (FEHD) also carried out thorough cleansing and disinfection for the market concerned. As a result of these concerted efforts, the number of cases had declined since November 2021.

Recent upsurge of invasive Group B Streptococcus infection

Since the outbreak in 2021, Hospital Authority (HA) has been monitoring the number of patients detected with GBS in blood or cerebrospinal fluid (CSF) under its care. On October 27, 2023, CHP was alerted by HA of an upsurge in the number of patients detected with GBS since September 2023. A slight increase in overall number of GBS from an average of 18 cases per month to 29 cases in September 2023 was observed. This was mainly attributed to the increase in GBS cases under the care of hospitals in New Territories East Cluster (NTEC) (yellow arrow in Figure 1). The baseline of invasive GBS cases was zero to six cases per

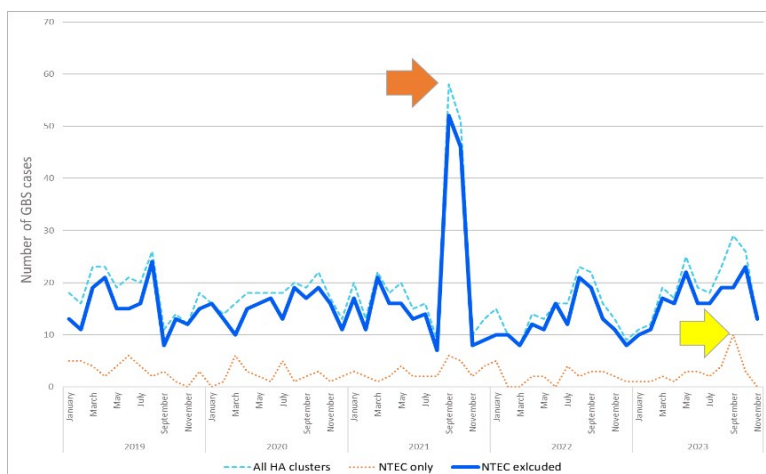


Figure 1 – Number of patients detected with GBS in blood or CSF by HA

month in NTEC since 2019. From September 1 to October 31, 2023, however, 17 patients (13 cases detected in blood and CSF, and the other four cases detected in deep tissue or joint fluid) had been identified by the NTEC hospitals (catchment areas include Sha Tin, Tai Po and North District).

Sequence typing of the NTEC cases had been performed by the Public Health Laboratory Services Branch (PHLSB) of CHP and eight cases of which were found to be ST283.

These eight ST283 cases comprised six males and two females. Their ages ranged from 49 to 85 years (median: 66.5 years). Four cases were retired and the other four cases worked as a cook, a driver, a construction worker or decoration worker respectively. Four cases resided in Sheung Shui, two resided in Fanling and the other two resided in Ma On Shan.

Three of the eight cases enjoyed good past health while the other five had underlying illnesses. Two of the eight cases presented as meningitis, another two presented as septic arthritis, and the other four cases presented as sepsis, spondylodiscitis, pyelonephritis and necrotising fasciitis respectively. Two died of the disease and the other six cases had already recovered and discharged. The epidemic curve (Figure 2) shows that the number of cases peaked in late September 2023 and the symptom onset date of the last case was October 7, 2023. No new case has been identified as of December 10, 2023.

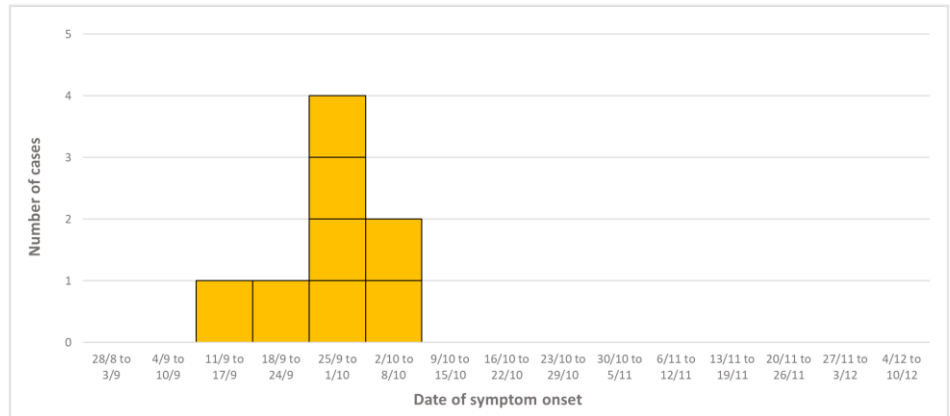


Figure 2 – Epidemic curve by date of symptom onset of the 8 GBS ST283 cases

Epidemiological investigation showed that seven of the eight cases had history of recent freshwater fish intake bought from a market in Sheung Shui. While one of them recalled eaten undercooked mud carp, the other seven cases recalled eaten well cooked grass carp or bighead carp; or both. All of them denied taken freshwater sashimi. Seven of the eight cases had handled the freshwater fish before onset of symptoms; five reported handling the fish with bare hands and three had pre-existing wounds or sustained injury in hands during handling. No other family members of the cases were affected.

CHP collected seven fish samples and 22 environmental swabs (Figure 3) on November 1, 2023 for testing by PHLSB from the two freshwater fish stalls in the wet market from which the freshwater fish had been handled or consumed by the cases. ST283 was not detected in any of the samples collected. That said, the stalls had carried out thorough cleansing and disinfection.

Epidemiological investigation suggested the cluster of infection could be related to handling or consumption of undercooked freshwater fish bought from a market in Sheung Shui in September.



Figure 3 – An environmental swab taken during field investigation at a local wet market

CHP also conducted active case finding and health education for all the freshwater fish stall workers in the market concerned. CHP had worked with FEHD to carry out thorough cleansing and disinfection. Similar to Singapore, the sale of “freshwater fish sashimi” is prohibited in Hong Kong.

CHP will continue to closely monitor invasive GBS cases reported by HA to identify risk factors and epidemiological linkage.



Tips for prevention of invasive GBS infection

To prevent invasive GBS infection associated with freshwater fish, members of the public are reminded to maintain personal, food and environmental hygiene and should keep their hands clean and practice good wound care at all times, especially:

- ✦ Wear gloves while handling raw freshwater fish or seafood and avoid having wounds coming in contact with raw freshwater fish or seafood;
- ✦ Avoid eating raw freshwater fish or freshwater aquatic products; and
- ✦ Avoid skin contact with dirty water when visiting wet market and maintain good hand hygiene.

Reference

¹ Barkham T, Zadoks RN, Azmai MNA, et al. One hypervirulent clone, sequence type 283, accounts for a large proportion of invasive *Streptococcus agalactiae* isolated from humans and diseased tilapia in Southeast Asia. *PLoS Negl Trop Dis*. 2019 Jun 27;13(6):e0007421.

Exercise “Prehnite” tests Government’s response against Plague

Reported by Dr HY LO, Medical and Health Officer; Dr Geeta SHARMA, Senior Medical and Health Officer, Emergency Preparedness and District Relations Division, Emergency Response and Programme Management Branch, CHP

On November 27, 2023, the Centre for Health Protection (CHP) of the Department of Health (DH) organised a public health exercise, codenamed “Prehnite”, to assess the readiness of various government departments in responding to an imported plague case with subsequent local transmission. The key objectives of this exercise were to evaluate the local capability in managing an imported plague case, strengthen the coordination across all involved government departments, and enhance awareness among stakeholders about effective management of public health emergencies.

The exercise was divided into two parts. The first part was a table-top exercise conducted on November 20, 2023, involving nine relevant departments and the Hospital Authority (HA). The participants discussed and co-ordinated the necessary response measures for a simulated scenario where plague was transmitted within a residential building.

The second part, conducted on November 27, 2023, was a ground movement exercise. Under the exercise simulation, the CHP was notified by the HA of a case of plague, and immediately commenced epidemiological investigations. An initial investigation revealed that the patient had visited a place experiencing outbreak of plague during the incubation period. Upon returning to Hong Kong, the patient resided in a residential building with family and interacted with neighbours after onset of symptoms. The CHP, in collaboration with relevant government departments, conducted a site visit to the building concerned, traced the contacts of the index case, and carried out evacuation and quarantine operations after confirmation of disease spread in the building. The Food and Environmental Hygiene Department (FEHD) also carried out surveys for rodent and flea infestations in the building and its surrounding area, and implemented preventive and control measures promptly. About 70 participants from relevant government



Photo 1 – The Director of Health, Dr Ronald Lam (second right), and the Controller of the CHP of the DH, Dr Edwin Tsui (first right), with experts from the Mainland and Macao health authorities observing the gowning process during the exercise.



Photo 2 – Officers conducting a visit to a patient's residence.

departments took part in the ground movement exercise, with 30 experts from the Mainland and Macao health authorities attending as observers.

Plague is a zoonotic disease, caused by the bacterium *Yersinia pestis*, affecting both animals and humans. It manifests in three main forms: bubonic, pneumonic, and septicaemic. Since the 1990s, most human cases have been reported in Africa. Plague is transmitted from an infected animal (mainly rodents) to humans through the bite of its fleas. Plague can also be contracted when cuts or other breaks in the skin come into contact with the body fluids or tissue of infected animals. Consumption of infected animal tissue and inhalation of infected respiratory droplets are also possible modes of transmission. Plague in a human is a serious disease with a case-fatality ratio of 30% to 60% for the bubonic type, and is usually fatal for the pneumonic and septicaemic types if left untreated. According to the World Health Organization, 2 886 cases were reported in 11 countries worldwide from 2013 to 2018, including 504 deaths. Among them, over 90% of cases were from sub-Saharan Africa.



Photo 3 – An officer of FEHD placing an alcohol rodent trapping device at a patient's residence.

Hong Kong experienced a significant plague outbreak in May 1894, with at least 5 000 cases reported. From 1894 to 1929, over 20 000 cases were recorded, with a mortality rate around 90%. While there have been no recorded plague cases since 1929, the presence of rats and rat fleas in Hong Kong, high volume of global traffic (both human and goods), as well as the presence of plague in certain areas outside Hong Kong, necessitate ongoing vigilance and preparedness.

To date, the DH has coordinated a total of 29 exercises, including "Prehnite", simulating situations such as novel influenza, Middle East Respiratory Syndrome, and Ebola virus disease. These exercises aim to test the efficiency and coordination of different government departments and stakeholders, and promote vigilance and preparedness among the community and healthcare personnel against potential epidemics. As we live in an increasingly globalised world where diseases can easily cross borders, constant preparedness, vigilance, and learning from these exercises are our best defense against future outbreaks. Going forward, the DH will continue to organise such exercises to enhance the readiness of individuals and organisations in effectively managing future outbreaks swiftly and effectively.



Photo 4 – Officers of FEHD explaining the use of thermal cameras in the prevention and control of rodents.



Photo 5 – A command post officer providing a wristband to an evacuee.



Photo 6 – An officer of the Auxiliary Medical Service scanning the QR code from a resident's wristband to verify identity.

NEWS IN BRIEF

Two local sporadic cases of psittacosis

The Centre for Health Protection (CHP) of the Department of Health recorded two sporadic cases of psittacosis on November 29 and December 13, 2023 respectively.

The first case affected a 58-year-old male with underlying medical diseases residing in Kowloon City. He presented with fever, productive cough and shortness of breath in mid-November and was admitted to a public hospital on November 27. His chest X-ray showed feature of pneumonia. His clinical condition deteriorated and was later transferred to intensive care unit for further management. His endotracheal aspirate collected on November 28 was tested positive for *Chlamydia psittaci* DNA by polymerase chain reaction (PCR). He cannot recall history of contact with birds' droppings or bird carcasses and he has no pets at home. He works as a lo-mei chef and all poultry handled at work were frozen. He had no travel history during the incubation period. His household contacts and co-workers were asymptomatic.

The second case affected a 52-year-old male with underlying medical diseases residing in Yuen Long. He presented with fever, cough and malaise on November 21 and was admitted to a public hospital on December 5. His chest X-ray showed pneumonia and he was treated with antibiotics. His bronchoalveolar lavage collected on December 8 was tested positive for *Chlamydia psittaci* DNA by PCR. His condition improved and was discharged against medical advice on December 12. He recalled cleaning bird's dropping on his outdoor bike without gloves or surgical mask during the incubation period. He was a part-time kitchen worker in a restaurant that only received frozen or roasted products. He had no travel history during the incubation period. His household contacts and co-workers were asymptomatic.

A sporadic case of necrotizing fasciitis due to *Vibrio vulnificus* infection

On December 1, 2023, CHP recorded a sporadic case of necrotizing fasciitis caused by *Vibrio vulnificus*.

The case involved an 84-year-old female with underlying illnesses. She presented with fever, left foot pain and swelling to a public hospital on November 27, 2023 and was admitted on the same day. The clinical diagnosis was necrotising fasciitis complicated by septic shock. Above knee amputation was carried out and *Vibrio vulnificus* was recovered from tissue swab. The index was known to have sustained injury whilst preparing a marine fish for dinner on November 27.

A local sporadic confirmed case of Listeriosis

On December 1, 2023, CHP recorded a case of listeriosis affecting a 58-year-old man with multiple comorbidities including alcohol dependence syndrome, recurrent pancreatitis, diabetes mellitus and liver cirrhosis. He presented with vomiting and diarrhoea on November 26 and was found unconscious at home by his wife and was sent to a public hospital on November 29. He was noted to have fever and confusion after admission. The clinical diagnosis was meningitis and his cerebrospinal fluid was cultured positive for *Listeria monocytogenes*. His condition was serious, requiring ICU care. He had no travel history during the incubation period and according to his family members, he did not consume high risk food. His family members were asymptomatic.

An imported sporadic confirmed case of tetanus

On November 29, 2023, CHP recorded an imported case of tetanus affecting a 54-year-old man with good past health. The patient developed generalised weakness was found collapsed on the street with head injury in Sham Shui Po on November 27 and was admitted to a public hospital. On November 28, he developed sudden onset of increased muscle tone, trismus and opisthotonus and was transferred to intensive care unit for further management. Computer tomography of brain was unremarkable. He was intubated and was on ventilator. As clinical features were suggestive of tetanus infection, he was given benzodiazepine, tetanus immunoglobulin, Augmentin, Metronidazole and vaccination with tetanus toxoid. His condition was serious. The patient was reported to have entered Hong Kong from mainland in late November. Vaccination history against tetanus was unknown. The patient reported before intubation that he had sustained injuries on toes of left foot on November 19 in mainland. Based on the history of injury and incubation period (usually 3-21 days), he was classified as an imported case of tetanus.