

Communicable Diseases

WATCH



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FEATURE IN FOCUS

Review of *Candida auris* Infection in Hong Kong

Reported by Dr Cynthis LAM, Dr Wenhua LIN, Dr Benjamin WF Fung and Dr Zenith HY Wu from Communicable Disease Branch, and Dr SY SHING and Dr Leo LUI from Infection Control Branch, CHP.

Candida auris (*C. auris*) is an emerging multidrug-resistant fungus which presents serious threat to public health. It was first reported in 2009 after being isolated from external ear canal of a patient in Japan. *C. auris* is harmless for most healthy people, and it may colonise carriers without causing symptoms and persist in the environment for a long time. However, it may cause severe and fatal infections, especially in vulnerable groups such as the immunocompromised. *C. auris* is posing severe burden for healthcare settings worldwide as it has caused outbreaks in healthcare facilities, including hospitals and residential care homes, in various countries. The known characteristics of *C. auris* (rapid acquisition and spread within affected facilities, challenging environmental decontamination, and long and intermittent carriage) has made the control of *C. auris* spread particularly challenging.

Local situation of *C. auris* in Hong Kong

In Hong Kong, following detection of the first imported case of *C. auris* carrier in a public hospital in June 2019, public hospitals have been implementing active screening including admission screening of high-risk patients, screening of close contacts, performing stringent infection control measures, and reporting every positive case to the Centre for Health Protection (CHP) of the Department of Health.

From 2019 to September 19 2023, the CHP recorded 470 *C. auris* cases. They included 319 males and 151 females with age ranged from 20 to 105 years. Upon investigation, three were found to be sporadic cases and 467 cases were involved in a total of 49 epidemiologically linked clusters. An increasing trend of number of cases recorded has been observed since 2023 (Figure 1). Majority (41, 83.7%) of the clusters occurred in hospitals affecting a total of 400 persons while the remaining (8, 16.3%) occurred in residential care homes for the elderly (RCHEs) affecting a total of 67 persons. The number of persons affected in each cluster ranged from 2-51 (median: 6 persons) in hospital clusters and 3-31 (median: 4 persons) in RCHE clusters.

Management of *C. auris* carriers discharged from hospitals to RCHEs

RCHE residents who were found to be *C. auris* carriers in hospitals with no active illness requiring hospital treatment will be discharged to their respective RCHEs. Since July 2019, 186 *C. auris* carriers were discharged from hospitals to respectively 97 RCHEs, with a range of one to six carriers discharged to each RCHE. The number increased since 2023, following closely the overall trend of recorded cases (Figure 1).

To empower the community institutions for preventing spread of this emerging multi-drug resistant organism (MDRO), the CHP and Social Welfare Department have jointly provided training to staff from all RCHEs on how to manage *C. auris* carriers. Staff

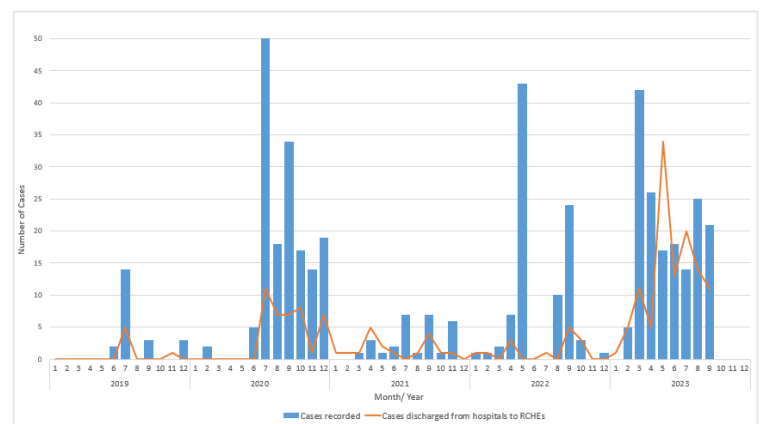


Figure 1 – Monthly number of *C. auris* cases recorded in Hong Kong and monthly number of cases discharged from hospitals to RCHEs, since 2019 (up to September 19 2023)

of RCHEs are advised to follow the infection control advice on management of MDROs in RCHEs on proper hand hygiene, placement, contact precaution, using dedicated equipment and dedicated facilities.



(CHP guideline) Infection control advice on management of MDROs in RCHEs include*:

1. Proper hand hygiene of staff and residents.
2. Proper placement: the resident should preferably be placed in a single room. If single rooms are not available, residents with the same MDRO should be cohorted in the same room or partitioned area.
3. Infection control precautions: contact precautions should be adopted for caring procedures and the environment needs to be cleaned and disinfected with 1: 49 diluted bleach at least twice daily. The frequency needs to be increased for frequently touched areas.
4. Dedicated equipment: the resident should have dedicated equipments like wheelchair, blood pressure (BP) cuff for him/herself. If shared equipment is used, it needs to be thoroughly cleaned and disinfected after each use.
5. Dedicated facilities: it is preferred that the resident to have his/her own toilet and bathing facilities. If shared facilities are used, they need to be thoroughly cleaned and disinfected after each use.

The CHP also works closely with the Hospital Authority (HA) and RCHEs to monitor the management of *C. auris* in RCHEs. CHP and Community Geriatric Assessment Team (CGAT) of HA will conduct joint site visits to the RCHE to better prepare the RCHEs for receiving and managing the *C. auris* carriers.

Since it may take months before clearance of the carriage status after patients were discharged to RCHEs (mean and median duration of carriage: 164 days and 135 days respectively), CHP and CGAT will provide continuous support by paying regular visits to the concerned RCHEs, offering advice and guidance, and checking of compliance of RCHE staff on proper infection control measures during the carriage phase. In 2023, CHP has so far conducted 114 visits to 68 RCHEs, located mainly in the KWC and KCC regions.

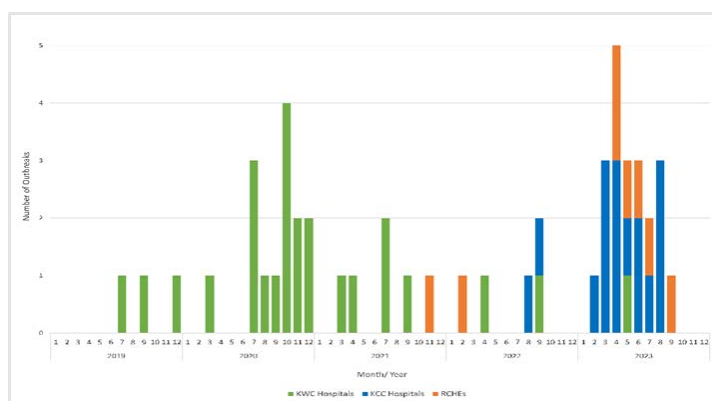
During these visits, staff of RCHEs were observed to be working diligently to comply with the infection control advice. Although many homes do not have optimal infrastructure such as single rooms to isolate *C. auris* carriers, majority of the RCHEs with *C. auris* carriers comply satisfactorily with the various infection control measures. Occasionally lapses of infection control practice can be observed during care process (e.g. diaper change) and reprocessing of cleansing tools, which were rectified during the visits. With increasing hospitals outbreaks and increasing number of *C. auris* carriers discharge from hospitals to RCHEs, the transmission pressure in RCHE would increase. Suboptimal infrastructure (e.g. lack of adequate isolation facilities) and software (e.g. manpower insufficiency and high turnover rate of staff resulting in lapses in contact precautions) are the main constraints in these RCHEs that could lead to transmission.

Outbreaks of *C. auris* infection in hospitals and RCHEs

From July 2019 to December 2022, a total of 26 hospital outbreaks affecting 289 in-patients were reported and the trend was relatively stable. Twenty-four (92.3%) of them occurred in hospitals under Kowloon West Cluster (KWC) of HA. Two (7.7%) outbreaks occurred in Kowloon Central Cluster (KCC) of HA (Figure 2).

During the same period, CHP also recorded two outbreaks of *C. auris* in RCHEs affecting 3 residents in Kwai Chung in 2021 and 3 residents in Tung Chung in 2022 respectively that were under the catchment area of KWC.

A significant increase in number of hospital outbreaks was observed in 2023. From January to August 2023, a total of 15 outbreaks of *C. auris* affecting 111 in-patients have been reported in public hospitals. The number of persons affected in each outbreak ranged from 2 to 26 (median: 6 persons). Except for one outbreak affecting a hospital in KWC, the other 14 outbreaks were all from hospitals in KCC.



Similarly, CHP also recorded an increased number of outbreaks of *C. auris* in RCHEs in 2023 (Figure 2). A total of 6 outbreaks affecting 61 residents in 6 separate RCHEs were recorded so far. The affected RCHEs were located in Sham Shui Po (2), Kowloon City (1), Kwai Chung (2) and Tsuen Wan (1). The number of persons affected in each outbreak ranged from 3 to 31 (median: 6.5 persons). Among them, the index cases of 5 outbreaks could be traced back as residents who were found to be carriers of *C. auris* discharged from public hospitals of KWC back to RCHEs, while that of the remaining one outbreak was discharged from a public hospital of KCC.

Outbreak control and infection control measures in RCHEs

Upon receiving a report of suspected outbreak of *C. auris* in RCHEs, CHP will conduct epidemiological investigation including identification of potential source and contributing factors, and conduct screening for contacts aiming to contain further spread. Infection control measures including isolation/ cohorting of carriers, contact precautions for RCHE staff, environmental cleaning and disinfection, and use of dedicated facilities (such as BP cuff) for carriers will be implemented in the RCHEs.

In addition, CHP will provide for RCHEs infection control advice and tools of audits on different aspects including hand hygiene and environmental hygiene as appropriate, to facilitate self-compliance monitoring by the RCHE staff. Follow-up visits will also be arranged to ensure timely rectifications and improvements.

In view of upsurge of *C. auris* cases that have to be managed in RCHEs, CHP organised two sessions of infection control training on *C. auris* in early 2023 targeting RCHE staff, a total of 2,338 representatives from 217 institutions attended the sessions^{**}. The topics covered updated situation of *C. auris* in Hong Kong, infection control measures in RCHEs applicable to *C. auris*, follow-up screening arrangements for known *C. auris* carriers at RCHEs and various support and resources for RCHEs.

Conclusion

With increasing number of *C. auris* outbreaks occurred in hospitals, the caseload of *C. auris* carriers discharged back to the community has posed increased pressure to RCHEs. Outbreaks of *C. auris* in RCHEs have become more frequent in 2023 especially among those homes with suboptimal capacity. Overseas experience have shown that *C. auris* outbreaks are difficult to be controlled. CHP has been working with the public hospitals to formulate and implement additional measures including use of ultra-violet-C (UV-C) and hydrogen peroxide to enhance environmental disinfection in hospital wards, screening of residents before discharging to RCHEs from hospitals with outbreaks, decolonisation therapy to *C.auris* carriers in RCHEs, in an attempt to better prevent and control of outbreaks in hospitals and RCHEs.

Review of Legionnaires' Disease in Hong Kong in 2023

Reported by Dr Lai Shuk-mui, Katie, Medical and Health Officer, Respiratory Disease Section, Surveillance Division, Communicable Disease Branch, CHP

Legionnaires' disease (LD) is one of the statutory notifiable diseases in Hong Kong. It is a type of bacterial pneumonia caused by *Legionella*, most commonly *Legionella pneumophila* serogroup 1 (Lp1). The bacteria has optimal growth within the temperature range around 20°C to 45°C, particularly in the range of 35°C to 43°C. More cases are usually observed in the warmer season, but it can happen any time throughout the year. This article reviews the LD cases reported to the Centre for Health Protection (CHP) of the Department of Health in the first eight months of 2023.

CHP recorded a total of 70 LD cases in the first eight months of 2023, higher than 43 and 56 cases recorded in the same period in 2021 and 2022 respectively (Figure 1), but comparable with the same period in years from 2018 - 2020 (63 to 78 cases).

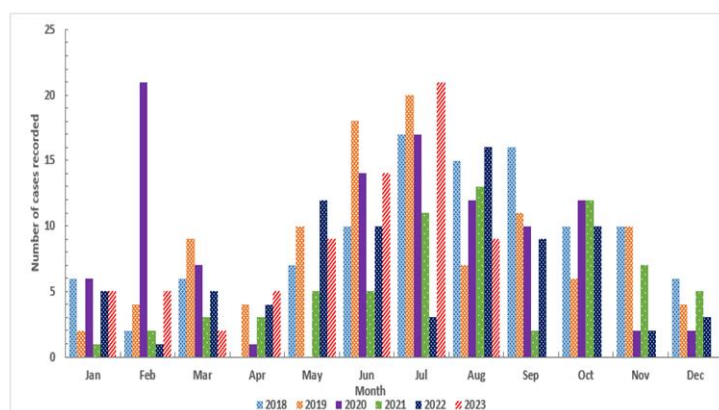


Figure 1 – Monthly number of reported Legionnaires' disease cases, 2018 – 2023, as of August 31, 2023.

^{**} The training materials is available for review online at the Hong Kong Training Portal on Infection Control and Infectious Disease (<https://icidportal.ha.org.hk/Contents/View/460>)

There was a marked increase in LD cases reported in June to July 2023, accounting for half (35 cases) of the cases reported in the first eight months.

Clinical and epidemiological characteristics

Among the 70 LD cases recorded in the first eight months of 2023, their ages ranged between 27 and 95 years (median: 70 years), with vast majority (65, 92.9%) affecting persons aged 50 years or above. There were more males with male-to-female ratio of 5.4:1. Out of the 70 LD cases, 61 cases (87.1%) had history of at least one underlying medical condition. For 63 cases with information of smoking history available, 20 cases (28.6%) were current smokers and 17 cases (24.3%) were ex-smokers.

Their common presenting symptoms included fever (84.3%), cough (70.0%) and shortness of breath (51.4%). All cases developed pneumonia and required hospitalisation. Sixteen cases (22.9%) required intensive care. Among the 70 cases, seven died within the same admission for LD, among them four died of LD.

Regarding laboratory diagnosis, 49 (70.0%) and 20 (28.6%) cases were initially diagnosed as LD by urinary antigen test (UAT) and polymerase chain reaction (PCR) of respiratory specimens respectively, while the remaining case was confirmed by sputum culture.

Fifty-seven (81.4%) cases were classified as locally acquired infections. The residential places of the 57 locally acquired cases were distributed in various districts in Hong Kong (Figure 2). Two cases resided within the same residential building in Wanchai, whereas the remaining local cases were residing at different places.

Three cases were nosocomial infection as the patients stayed in three respective hospitals for the whole incubation period. The respective hospitals carried out disinfection of the water supply systems and no other related cases were identified. One case was resident of a residential care home for the elderly and another one was resident of a residential home for the disabled. The respective homes also carried out disinfection of the irregularities found. Environmental investigation of the two cases who resided in the same building did not support common source outbreak so they likely to be two sporadic cases acquiring the infection from separate sources from the community. The other 50 cases did not have obvious epidemiological linkage or staying in high risk settings and likely to be sporadic infection acquiring from various sources from the community.

Discussion

In summary, the number of LD cases recorded in the first eight months in 2023 was higher than that in the same period in 2021 and 2022 but comparable with the years between 2018-2020. Epidemiological investigations did not reveal any community or nosocomial outbreaks as of present. As *legionellae* are ubiquitous in aqueous environments including man-made water systems, it is important to operate and maintain properly designed man-made water systems to prevent LD. The public, especially immunocompromised persons, should adopt preventive measures so as to decrease the risk of LD infection. Further information on LD is available from the designated webpage of the CHP (https://www.chp.gov.hk/en/view_content/24307.html). Information about the good practices in handling man-made water systems is detailed the Code of Practice for Prevention of LD and the Housekeeping Guidelines for Cold and Hot Water Systems for Building Management published by the Prevention of LD Committee (available on the website of the Electrical and Mechanical Services Department at <https://www.emsd.gov.hk>).

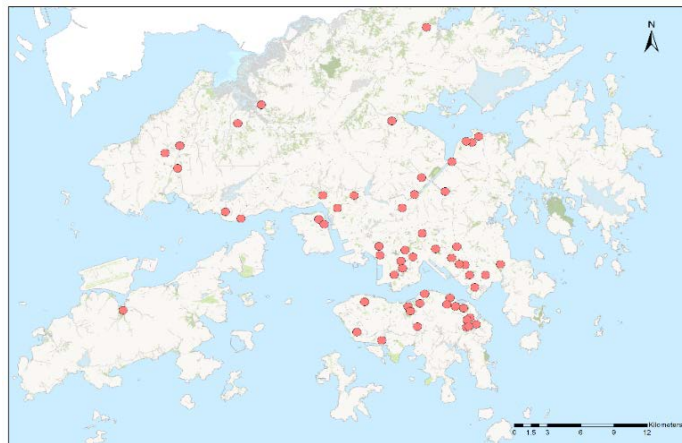


Figure 2 – Geographic distribution of the residential places of the 57 locally acquired LD cases

(Source: Communicable Disease Information System).

NEWS IN BRIEF

A probable case of sporadic Creutzfeldt-Jakob Disease in Kwun Tong

On August 28, 2023, the Centre for Health Protection (CHP) recorded a probable case of sporadic Creutzfeldt-Jakob Disease (CJD) affecting an 83-year-old woman with underlying illness. She presented with significant decline in general condition and rapid progressive dementia in May 2023. She was admitted to public hospital on June 15, 2023 after falling at home on June 14, 2023. She was found to have myoclonus and extrapyramidal dysfunction. Electroencephalogram (EEG) showed features typical of CJD and 14-3-3 protein was detected in her cerebrospinal fluid. Her condition was stable. There was no known family history of CJD and no reported risk factors for iatrogenic CJD. She was classified as a probable case of sporadic CJD.

Two sporadic cases of necrotizing fasciitis due to *Vibrio vulnificus* infection

On September 16 and 18, 2023, CHP recorded two sporadic cases of necrotizing fasciitis caused by *Vibrio vulnificus*.

The first case involved a 64-year-old male with underlying illnesses. He presented with right hand pain and swelling to a public hospital on September 13, 2023 and was admitted on the same day. Clinical diagnosis was necrotising fasciitis complicated by shock and acute kidney injury. Surgery was performed and *Vibrio vulnificus* was cultured from necrotic tissue. According to his family, the patient went fishing on the sea a few days before symptom onset, during which he sustained an injury at right hand. He did not report consumption of uncooked seafood.

The second case was a 74-year-old male fisherman residing on fishboat stayed mostly in Hong Kong waters. He presented with right forearm pain and swelling to a public hospital on September 16, 2023 and was admitted on the same day. A clinical diagnosis of necrotizing fasciitis was made and surgery was performed soon after hospitalisation. Intra-operative forearm fluid swab grew *Vibrio vulnificus*. The index was known to have prepared a marine fish for dinner on September 15.

A local sporadic case of *Streptococcus suis* infection

On September 18, 2023, CHP recorded a sporadic case of *Streptococcus suis* infection affecting a 74-year-old woman with underlying illness residing in Sha Tin. She presented with fever, neck stiffness and confusion on September 16 and was admitted to a public hospital on September 17. Both her cerebrospinal fluid and blood culture grew *Streptococcus suis*. She was treated with antibiotics and remained in stable condition. During incubation period, she handled raw pork without wearing gloves. She had no recent wound or other high-risk exposure. There was no history of recent travel. She lived with her husband who was asymptomatic.