

Communicable Diseases

WATCH

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FEATURE IN FOCUS

Preventing the Spread of *Candida auris* in Residential Care Homes in Hong Kong

Reported by Dr Joyce LEE, Medical and Health Officer and Dr CHEN Hong, Consultant and Head, Infection Control Branch, CHP

Candida, a family of fungi (yeasts), normally lives inside the body such as the mouth, throat, gut, and vagina and on the skin without causing any infection. *Candida auris* is an emerging fungus that presents a global health threat. It was first reported as a novel yeast isolated from external ear discharge of a patient in Japan in 2009¹. Since then, *Candida auris* has been isolated on five continents in over 20 countries. It can colonise patients for several months without causing any diseases. It can also cause invasive infections such as candidemia, pericarditis, pneumonia, severe urinary tract infection, especially in critically ill patients and immunocompromised patients. Overseas studies showed that risk factors for invasive infections include nursing home exposure, prolonged hospital stay, use of invasive devices, immunocompromised status and use of broad spectrum antimicrobial drugs. *Candida auris* infection is associated with high mortality².

Candida auris is of public health concern because it has the following unique features. First, it is resistant to multiple antifungal drugs. In the United State (US), about 90% of *C. auris* isolates are resistant to fluconazole, about 30% are resistant to amphotericin B, and less than 5% are resistant to echinocandins. Secondly, it is difficult to identify with standard laboratory methods. Thirdly, it can be easily transmitted in healthcare settings. The vehicles of transmission can be healthcare workers' hands, the hospital environment as the fungus can survive for weeks on plastics, fabrics and nonporous surfaces in the environment. It can withstand commonly used surface disinfectants. It caused healthcare-associated outbreaks in different countries. Centers for Disease Control and Prevention of the US issued clinical alert to US healthcare facilities in June 2016³.

The first *Candida auris* carrier in Hong Kong was detected in June 2019. An outbreak was reported subsequently by Princess Margaret Hospital. The source of the outbreak could be traced back to a visitor who had history of hospitalisation in US. All together 16 carriers were found. Among them, four carriers were discharged to three Residential Care Homes for the Elderly (RCHEs) and one carrier was discharged to one Residential Care Home for Persons with Disability (RCHD).

To empower the staff of RCHE and RCHD and to enhance their infection control practice when taking care of these carriers, the Infection Control Branch of Centre for Health Protection of the Department of Health together with Licensing Office of Residential Care Homes for the Elderly (LORCHE) and Licensing Office of Residential Care Homes for Persons with Disabilities (LORCHD) of the Social Welfare Department organised training on *Candida auris* for RCHE and RCHD staff.

During the training, the following measures were emphasised:

- ◆ Placement of *Candida auris* carriers: Residents who are carriers should preferably be placed in single rooms or cohorted together. Non-carriers should not be assigned to live with confirmed carriers in the same room.
- ◆ Infection control precaution: The home should adopt standard precautions and modified contact precautions. The staff need to wear gown and glove if he/she will have direct contact with the residents or contaminated objects when taking care of residents who are carriers.
- ◆ Enhanced environmental cleansing and disinfection: The home should increase the frequency of environmental cleansing and disinfection by one in 49 diluted household bleach (mixing one part of household bleach containing 5.25% sodium hypochlorite with 49 parts of water) at least three times per day especially for frequently-touched areas such as door knobs, bedside tables or bedside rails.
- ◆ Dedicated equipment: The home is advised to use dedicated non-critical items (such as wheelchairs, blood pressure cuffs) and cleansing tools for residents who are carriers. Equipment should be cleaned and disinfected thoroughly after use.
- ◆ Dedicated facilities: The home is advised to allow residents who are carriers to use dedicated toilet and bathing facilities. If this is not feasible in the home, assign the carrier as the last one in the nursing care rounds (such as diaper or bath rounds). Clean and disinfect the facilities thoroughly after use.

The trainings were well received by 406 RCHE staff and 516 RCHD staff. The related training materials can be freely accessed by <https://icidportal.ha.org.hk/Contents/View/203> and <https://icidportal.ha.org.hk/Contents/View/204> for RCHE and RCHD trainings respectively.



Photo 1 - Three identical training sessions for RCHEs were organised.



Photo 2 - Two training sessions for RCHDs were organised.



Photo 3 - Trainings were well attended and well received with interactive discussions during the Q&A session.

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Update on the situation of brucellosis in Hong Kong

Reported by Miss Doris CHOI, Scientific Officer, Communicable Disease Surveillance and Intelligence Office, Surveillance and Epidemiology Branch, CHP.

Brucellosis is a zoonotic disease caused by the bacteria of the genus *Brucella*. It is primarily a disease of animals such as cattle, goats, pigs and dogs. Human can acquire the infection via direct contact with infected animals, by consuming contaminated animal products or by inhaling contaminated aerosols.

Each year, more than 500 000 new human cases of brucellosis were reported worldwide. The main species that cause human brucellosis include *Brucella abortus*, *B. melitensis*, *B. suis* and *B. canis*. Among them, *B. melitensis* is the most prevalent species while *B. abortus* is the most widespread potential source of infection¹.

Since *Brucella* species can be transmitted by direct contact with infected animals' blood, placenta, fetuses or uterine secretions through skin wounds, mucous membranes, or by inhalation, people who are occupationally exposed to infected animals or their excretions, such as slaughterhouse workers, meat-packing plant employees and veterinarians, are at risk of infection. The disease can also be transmitted through ingestion of contaminated raw animal products such as unpasteurised dairy products. Human-to-human transmission through sexual contact or breastfeeding from lactating mothers to infants are rare^{2,3}.

The incubation period of brucellosis usually ranges from five to 60 days, but can be as long as several months. Symptoms are non-specific, including fever, sweating, headache, muscle, joint and/or back pain, fatigue, loss of appetite and weakness. Severe infections may affect brain, heart, liver, spleen and other organs. Pregnant women acquiring brucellosis may develop spontaneous abortion, particularly during the first and second trimesters⁴. The disease may progress to a chronic one that persists for years. The case fatality rate of untreated cases is 2% or less⁵.

From January 2015 to August 2019, the Centre for Health Protection (CHP) of the Department of Health recorded a total of 21 sporadic cases of laboratory confirmed brucellosis, with annual number ranging from three to eight cases (Figure 1). These included 11 men and 10 women, with ages ranging from two to 88 years (median: 52 years). Common presenting symptoms were fever (100%), arthralgia (42.9%), malaise (33.3%), headache (28.6%), weight loss (23.8%), back pain (19.0%) and chills (19.0%). All recorded cases required hospitalisation. Eighteen cases had recovered uneventfully and two cases died, while the latest case reported in August 2019 is still hospitalised in stable condition. For the 18 cases who had been discharged, the length of stay spanned from three to 83 days (median: 14 days). The two fatal cases included an 85-year-old man who died due to the infection and another 76-year old man who died from terminal malignancy. Of note, one case in 2019 affected a pregnant woman at 17 weeks of gestation who was complicated with spontaneous abortion during the period of infection.

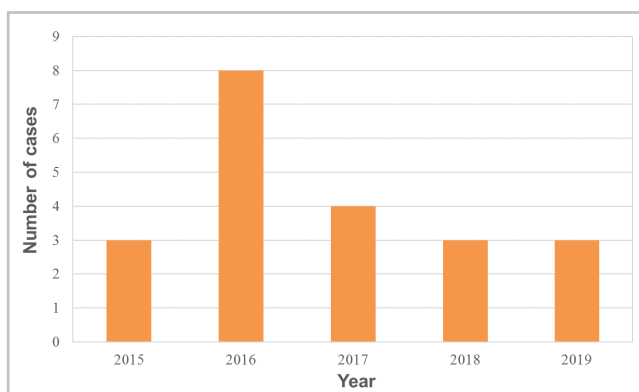


Figure 1 - Annual number of brucellosis cases reported to CHP from 2015 to 2019 (as of August 31, 2019).

The diagnoses of the majority of cases (14 cases, 66.7%) were confirmed by isolation of *B. melitensis* from clinical specimens. The remaining seven cases were confirmed by serological tests (i.e. four-fold or greater rise in *Brucella* titre between acute and convalescent-phase serum specimens) for *B. abortus* in four cases (19.0%) and for both *B. melitensis* and *B. abortus* in three cases (14.3%).

Thirteen patients (61.9%) acquired the disease locally while three (14.3%) were imported cases from Mainland China. The importation status of the remaining five cases (23.8%) could not be ascertained as they had stayed both locally and overseas during their incubation periods.

Nine cases (42.9%) had high risk exposure history. Among them, two patients had occupational exposures to animals or raw animal products, including a butcher of goats who worked in Mainland China, and a local frozen meat-cutting technician who processed frozen beef, pork and mutton at work. Another four patients prepared and consumed meat or internal organs of lamb or pig. One patient consumed beef and mutton in a hotpot meal but was not certain if the meat was well cooked. Besides, one patient had contact history with cows and pigs in Mainland China. One two-year-old boy had visited a local leisure farm where he fed a goat during incubation period.

Medical practitioners are encouraged to report suspected or confirmed cases of brucellosis to CHP for epidemiological investigation and control measures. Moreover, brucellosis is a notifiable occupational disease.

Currently, there is no licensed brucellosis vaccine for human use. To prevent the infection, members of the public should maintain good personal and food hygiene:

Maintain good personal hygiene

- ◆ Perform hand hygiene frequently. Wash hands thoroughly with liquid soap and water after having contacts with animals or their secretions.
- ◆ Clean broken skin immediately and cover wounds properly with waterproof adhesive dressings. Wash hands before and after touching wounds.
- ◆ Wear appropriate protective equipment, including mask, gloves, goggle and gown or apron, when handling animal tissues or internal organs especially for those who are exposed occupationally. Wash hands thoroughly afterwards.

Maintain good food hygiene

- ◆ Do not consume unpasteurised dairy products, raw or undercooked meat and internal organs.
- ◆ Adopt the 5 Keys to Food Safety in 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 safe temperature) to prevent foodborne diseases.

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NEWS IN BRIEF

A local sporadic case of listeriosis

On August 27, 2019, the Centre for Health Protection (CHP) of the Department of Health recorded a sporadic case of listeriosis affecting a 69-year-old man with underlying illnesses. He had presented with fever since August 21 and was admitted to a public hospital on August 23. His blood specimen collected on August 24 grew *Listeria monocytogenes*. He was treated with antibiotics and his condition was stable. He had no recent travel history. He did not recall consuming any high risk food during the incubation period. His household contact remained asymptomatic.

Three sporadic cases of Creutzfeldt-Jakob disease

In early September 2019, CHP recorded three cases of Creutzfeldt-Jakob disease (CJD). The first case was a 63-year-old woman with underlying illnesses. She had presented with unsteady gait since late February 2019 and was admitted to a public hospital on March 9. She was found to have progressive dementia, cerebellar disturbance, myoclonus, akinetic mutism and extrapyramidal dysfunction. She developed chest infection and succumbed on June 15. The causes of death were chest infection and CJD. She was classified as a possible case of sporadic CJD.

The second case was a 90-year-old woman with underlying illnesses. She had presented with unsteady gait and left sided weakness since August 2019 and was admitted to a public hospital on August 21. She was found to have progressive dementia, myoclonus, pyramidal signs and akinetic mutism. She remained in stable condition. Findings of the magnetic resonance imaging of the brain and electroencephalography were compatible with CJD. She was classified as a probable case of sporadic CJD.

The third case was a 79-year-old man with good past health. He had presented with decline in memory since April 2019 and was admitted to a public hospital on July 20. He was found to have progressive dementia, cerebellar disturbance and pyramidal dysfunction. His condition remained stable. He was classified as a possible case of sporadic CJD.

The three cases had no known family history of CJD and had no reported risk factors for iatrogenic or variant CJD.

Two sporadic cases of psittacosis

On September 5, 2019, CHP recorded two cases of psittacosis. The first case was a 53-year-old man with underlying illnesses. He had presented with fever and cough since August 23 and was admitted to a public hospital on August 29. His chest X-ray showed bilateral consolidation and the diagnosis was pneumonia. He was treated with antibiotics and his condition remained stable. His sputum collected on September 1 was tested positive for *Chlamydia psittaci* DNA. He lived alone in Huizhou. He kept pet parrot at home which was asymptomatic. Health advice on environmental hygiene and seeking veterinary care was given to the patient.

The second case was a 66-year-old man with underlying illnesses. He presented with fever since August 23 and was admitted to a public hospital on August 27. His chest X-ray showed left upper zone consolidation and the diagnosis was pneumonia. He was treated with antibiotics and his condition remained stable. His bronchoalveolar lavage collected on August 30 was tested positive for *Chlamydia psittaci* DNA. He lived alone. He had no recent travel history. He did not keep any pets at home and reported no history of contact with birds or their excreta during the incubation period. Investigation did not identify epidemiological linkage between these two cases.

CA-MRSA cases in August 2019

In August 2019, CHP recorded a total of 108 cases of community-associated methicillin resistant *Staphylococcus aureus* (CA-MRSA) infection, affecting 62 males and 46 females with ages ranging from one month to 90 years (median: 38 years). Among them, there were 87 Chinese, 6 Filipinos, 4 Pakistani, 2 Indian, 2 Nepalese, 1 Caucasian, 1 Japanese, and 5 of unknown ethnicity.

One hundred and seven cases presented with uncomplicated skin and soft tissue infections while the remaining case had severe CA-MRSA infection. The severe case affected a 90-year-old woman with underlying diseases. She presented with burn injury over face and limbs on August 19 and was admitted to a public hospital. She was intubated and required intensive care. Her subsequent chest X-ray showed pneumonic changes. Cultures of her blood, tracheal aspirate, bronchoalveolar lavage, sputum and wound swabs over her face, neck, left upper limb and right lower limb were all positive for CA-MRSA. She was diagnosed with burn injury and CA-MRSA associated pneumonia with septic shock. She was treated with antibiotics and wound debridement. Her condition deteriorated and she subsequently succumbed on September 3.

Among the 108 cases, one case involving a healthcare worker in a public hospital was reported. Investigation did not reveal any epidemiologically linked cases. Besides, four household clusters, with each affecting two to three persons, were identified.

Scarlet fever update (August 1, 2019 – August 31, 2019)

Scarlet fever activity in August decreased. CHP recorded 64 cases of scarlet fever in August as compared with 116 cases in July. The cases recorded in August included 28 males and 36 females aged between 21 months and 46 years (median: six years). There were no institutional clusters or fatal cases reported in August.