

Communicable Diseases

WATCH



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FEATURE IN FOCUS

Review of brucellosis cases in 2016

Reported by Ms Sheree CHONG, Scientific Officer, CD Surveillance and Intelligence Office, Surveillance and Epidemiology Branch, CHP.

Brucellosis is an infectious disease caused by the bacteria of the genus *Brucella* which primarily affect animals, such as cattle, dogs, pigs, sheep and goats. Humans can be infected via direct contact with infected animals, by consuming contaminated animal products or by inhaling contaminated aerosols.

In 2016, the Centre for Health Protection (CHP) of the Department of Health (DH) recorded a total of eight confirmed cases of brucellosis in Hong Kong, including five women and three men with ages ranged between 48 and 88 years (median=59 years).

Table 1 - Summarises their demographic, clinical and epidemiological features. No evidence of epidemiological linkage was found among these eight cases in 2016.

	Case 1	Case 2	Case 3	Case 4	Case 5	Case 6	Case 7	Case 8
Sex/Age	F/51	F/66	M/73	F/48	F/78	M/52	M/51	F/88
Occupation	Security guard	Retired	Retired	Restaurant cleaner	Housewife	Fish seller	Unemployed	Retired
Past health	Gynaecological conditions	Good	Good	Good	Hypertension	Good	Neurological conditions	Neurological conditions
Date of onset	April 2016	January 2016	June 2016	June 2016	August 2016	July 2016	August 2016	October 2016
Clinical presentation	Fever, abdominal pain	Fever, weight loss, left leg swelling, flu-like symptoms	Fever, headache, neck stiffness	Fever, chills, rigor, right knee swelling	Fever, productive cough, anorexia, sustained a fall	Fever, chills, malaise, cough, runny nose, decreased appetite, weight loss, lower back pain, left leg pain, left sided chest wall pain	Fever, headache, sweating, fatigue, weight loss, arthralgia, generalised aching	Fever, chills, rigor, runny nose, fatigue
Microbiology findings	Blood culture positive for <i>Brucella melitensis</i>	Blood culture positive for <i>Brucella melitensis</i>	Paired sera showed more than 4-fold increase in antibody titres against <i>Brucella abortus</i>	Blood culture positive for <i>Brucella melitensis</i>	Blood culture positive for <i>Brucella melitensis</i>	Blood culture positive for <i>Brucella melitensis</i>	Paired sera showed 4-fold and more than 4-fold increase in antibody titres against <i>Brucella abortus</i> and <i>Brucella melitensis</i> , respectively	Paired sera showed more than 4-fold increase in antibody titres against <i>Brucella abortus</i>
Outcome	Recovered	Recovered	Recovered	Recovered	Recovered	Recovered	Recovered	Recovered
Exposure history	Handled and consumed the soup with lamb placenta and lamb meat in Mainland China one month before onset	No definite exposure history to animals or animal products	Handled and consumed pig hearts for several times since three months before onset	Handled and consumed mutton for several times since two months before onset	No definite exposure history to animals or animal products	Consumed cooked pig liver and intestines in Mainland China twice per month and keep a dog at home	No definite exposure history to animals or animal products	No definite exposure history to animals or animal products
Importation status	Imported	Unclassified	Local	Local	Local	Unclassified	Local	Local

Table 1 - Characteristics of eight brucellosis cases in Hong Kong in 2016.

The most commonly occurred symptoms among these eight patients were fever (8, 100%), musculoskeletal pain/swelling (5, 62.5%), weight loss (4, 50%), chills (3, 37.5%) and malaise/fatigue (3, 37.5%). None of these eight cases developed any disease-specific complications, such as sacroiliitis and orchitis. The diagnoses of majority of cases (5, 62.5%) were confirmed by isolation of *Brucella melitensis* from blood culture. The remaining three cases were confirmed by serological testing with paired sera showing four-fold or greater rise in antibody titre against *Brucella abortus* (2, 25%), and both *Brucella melitensis* and *Brucella abortus* (1, 12.5%). All eight patients required hospitalisation and had recovered uneventfully after treatment.

Among the eight cases recorded in 2016, five were classified as locally acquired infections, one was imported infection from Mainland China, and the remaining two cases had unclassified importation status as they stayed both in and outside Hong Kong during the incubation period and recalled no definite exposure history.

None of the eight cases belonged to at-risk occupations, such as animal handlers and veterinarians. Regarding the potential sources of infection, three cases had history of handling and consuming high-risk food items; one case had history of preparing and drinking the soup with lamb placenta and lamb meat during the visit to Mainland China but the patient denied consumption of the lamb placenta; and two cases had respectively handled and consumed pig hearts and mutton for several times since three months and two months before the symptom onset. There was another case that had consumed cooked pig liver and intestines in Mainland China but denied consumption of any other high-risk food both in and outside Hong Kong during the incubation period. The remaining four reported cases had no reported contact with internal organs or carcasses of animals, nor consumption of unpasteurised dairy products, raw or undercooked animal products.

Doctors are encouraged to report any suspected or confirmed brucellosis cases to the CHP for surveillance, control and prevention of the disease in the community. Moreover, brucellosis is a notifiable occupational disease.

Vaccine is available for animals only. To prevent brucellosis, members of the general public are urged to observe good personal and food hygiene:

- ◆ Do not consume unpasteurised dairy products, raw or undercooked meat and internal organs;
- ◆ Wash hands with liquid soap and water after having contacts with animals or their secretions;
- ◆ Cover wounds properly; and
- ◆ Wear appropriate protective gears, e.g. gloves when handling animal tissues or internal organs especially for those who are exposed occupationally.

Facts on brucellosis

Brucellosis is a bacterial infection caused by various species of *Brucella* bacteria. These bacteria primarily infect animals, such as cattle, dogs, pigs, sheep and goats.

Humans may acquire the infection in one of three ways: (1) ingestion of unpasteurised dairy products, raw or undercooked meat or internal organs from infected animals; (2) direct contact through breaks in the skin or mucous membrane with infected animal tissues, blood, urine, vaginal discharges, aborted fetuses and placentas; and (3) inhalation of contaminated aerosols.

Workers, such as slaughterhouse workers, meat-packing workers, and veterinarians, who have close contact with animals or their excretions, and laboratory workers, who work with *Brucella* cultures, are occupationally at a greater risk for contracting the disease. However, direct person-to-person transmission is extremely rare.

The incubation period of brucellosis is usually five to 60 days, but can be as long as several months. The symptoms of the disease are non-specific and may include fever, sweats, headache, pain in muscles, joint, and/or back, fatigue, loss of appetite, and physical weakness. Severe form of the disease may affect the brain, heart, skin, other organs or body systems.

The disease may progress to a chronic one and persist for years, if not adequately treated. Brucellosis can be treated by antibiotics and treatment will last for several weeks.

Update on Middle East Respiratory Syndrome

Reported by Dr Shirley TSANG, Scientific Officer, Respiratory Disease Office, Surveillance and Epidemiology Branch, CHP.

Introduction

Middle East Respiratory Syndrome (MERS) is a viral infection caused by the novel coronavirus MERS-coronavirus (MERS-CoV). MERS-CoV first emerged to cause human infections in the Middle East in early 2012. MERS-CoV is a zoonotic virus that has repeatedly entered the human population via contact with infected dromedary camels in the Arabian Peninsula. The virus also spreads among humans through close contacts. Since early 2012, the spread of MERS-CoV within the Middle East has been on-going with occasional exportation of cases to countries outside the Middle East. The largest outbreak outside the Middle East occurring in Korea in mid-2015 was triggered by a case exported to Korea from the Middle East. In this article, we reviewed the current situation of MERS.

Global Situation

Globally, since 2012, a total of 1 905 laboratory-confirmed cases of MERS have been reported to the World Health Organization (WHO) (as of February 24, 2017). Figure 1 shows the weekly number of laboratory-confirmed MERS cases by onset week. The number of reported cases reached 768 and 682 in 2014 and 2015 respectively and decreased to 252 in 2016. In 2017, 26 cases have been announced by the WHO via Disease Outbreak News so far.

The majority (1 689, 88.7%) of the cases were reported by countries/areas in the Middle East, including the Kingdom of Saudi Arabia (KSA) (1 545, 81.1%), the United Arab Emirates (UAE) (79, 4.1%), Jordan (28, 1.5%), Qatar (16, 0.8%), Oman (8, 0.4%), Iran (6, 0.3%), Kuwait (4, 0.2%), Bahrain (1, 0.1%), Lebanon (1, 0.1%), and Yemen (1, 0.1%) (Figure 2). Another 186 cases (9.7%) were related to the outbreak in Korea in mid-2015, including 185 cases in Korea and one case exported to Mainland China. The remaining 30 cases (1.6%) were detected in 17 countries outside the Middle East. They acquired the infection either during their travel to the Middle East (imported cases) or through exposure to a MERS patient who acquired the infection in the Middle East (import-related cases).

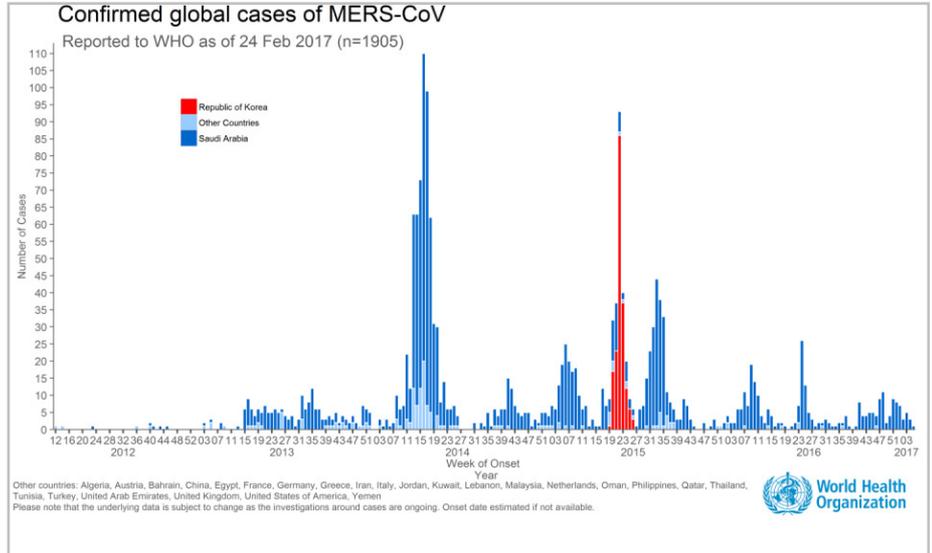


Figure 1 – Weekly number of MERS cases reported to the WHO by onset week (N = 1 905) (As of February 24, 2017). (Source:WHO (<http://www.who.int/emergencies/mers-cov/maps-february-2017/en/>))

From January 1, 2016 to February 24, 2017, a total of 278 MERS cases were reported to the WHO. Most of them (266/278, 95.7%) occurred in the KSA. The remaining cases in the Middle East were reported by Qatar (3), UAE (3), Oman (2) and Bahrain (1). Three cases were exported to countries outside the Middle East, including two cases in Thailand (imported from Oman and Kuwait in January and July 2016 respectively) and one case in Austria (imported from the KSA in September 2016). Hospital outbreaks in the Middle East occurred more frequently in 2016. While most of these outbreaks were small in size and affected several hospitals, two large hospital outbreaks occurred in Buraidah and Riyadh of the KSA in March and June 2016, respectively, resulting in large numbers of secondary cases among health care workers (HCWs) and patients. The number of cases started to decline after June 2016. However, MERS cases continued to appear sporadically in the KSA.

The epidemiological characteristics of the reported cases remained similar since the emergence of the disease in 2012. Among all the cases, their ages ranged from nine months to 109 years (median=52 years). Males were predominantly affected with a male-to-female ratio of 1.9:1. About half of the cases were known to have pre-existing medical conditions such as diabetes, chronic lung disease, chronic renal disease and immunodeficiency. At least 677 deaths were recorded with a case fatality rate of about 36%. Among the 1 841 cases reported to the WHO up to December 2, 2016, 20.6% had no or mild symptoms while 19.9% had moderate symptoms and 47.5% had severe disease or died at the time of reporting. About 20% of the cases affected HCWs.

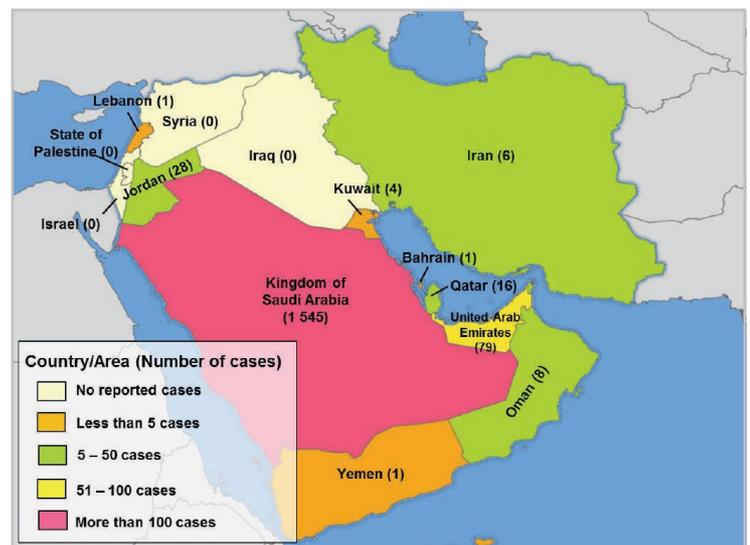


Figure 2 – Cumulative number of MERS cases in the Middle East since 2012 (N=1 689) (as of February 24, 2017).

Local Situation

In Hong Kong, MERS was listed as a notifiable disease on September 28, 2012. As of February 28, 2017, a total of 713 suspected cases were reported to the Centre for Health Protection (CHP) of the Department of Health and all of them were tested negative for MERS-CoV. Besides, the CHP has also collaborated with public and private hospitals to enhance surveillance for MERS since February 23, 2013. Routine testing for MERS-CoV would be carried out for cases of pneumonia with unknown cause, pneumonia cases requiring intensive care, clusters of pneumonia, or HCWs with pneumonia, irrespective of their travel history. So far, no MERS cases have been detected in Hong Kong.

Risk Assessment

In 2016, the epidemiology and transmission patterns of MERS-CoV remained unchanged. According to the WHO, most of the reported cases were either nosocomial cases associated with transmission in health care settings or community-acquired cases with contact with dromedary camels and consumption of their raw milk. Limited human-to-human transmission has occurred between close contacts of confirmed cases in household settings. More efficient human-to-human transmission occurs in hospital settings. The continued occurrence of nosocomial outbreaks is a concern. Secondary cases have reported varying levels of contact with confirmed patients, ranging from direct contact (e.g. HCWs providing direct care to MERS patients before diagnosis with MERS) to no clear contact (e.g. patients sharing wards with MERS patients, but without sharing HCWs or rooms). Currently, there is no vaccine or specific anti-viral treatment for MERS.

The WHO expects that additional MERS cases will be reported from the Middle East, and that cases will continue to be exported to other countries by individuals who might acquire infection after exposure to an animal (for example, while visiting farms or markets or consuming raw camel products) or human source.

Special Points to Note

The symptoms of MERS may be non-specific at initial presentation. If healthcare professionals encounter any patients presenting with respiratory symptoms after visiting the Middle East, it is very important to ask for history of visiting any health care facility there and direct or indirect contact with dromedary camels. Medical practitioners are reminded to notify the CHP of any suspected cases of MERS fulfilling the reporting criteria (available from https://cdis.chp.gov.hk/CDIS_CENO_ONLINE/ceno.html) for prompt investigation. Besides, infection control measures are critical to prevent the possible spread of MERS-CoV in healthcare facilities. Please refer to the infection control guidelines on MERS issued by the CHP (http://www.chp.gov.hk/en/view_content/26535.html).



Prevention and Control Measures

To prevent MERS, members of the public are reminded to take heed of personal, food and environmental hygiene when travelling to the Middle East to prevent MERS:

- Avoid going to farms, barns or markets with camels during travel;
- Avoid close contact with sick people, especially with those suffering from acute respiratory infections, and avoid visits to healthcare settings with MERS patients;
- Adhere to food safety and hygiene rules such as avoiding consuming raw or uncooked animal products, including milk and meat, or foods which may be contaminated by animal secretions, excretions (such as urine) or products, unless they have been properly cooked, washed or peeled; and
- If feeling unwell, put on a surgical mask and seek medical attention immediately and,
 - Before departure: postpone travel until recovery;
 - While at overseas: inform hotel staff or tour leader; and
 - After returning home: inform doctor of recent travel history during medical consultation.

Further information and guidance on MERS-CoV are available on the CHP website: http://www.chp.gov.hk/en/view_content/26511.html.

Reference

WHO. WHO MERS-CoV Global Summary and risk assessment, December 5, 2016.

Available from <http://www.who.int/emergencies/mers-cov/mers-summary-2016.pdf?ua=1>.

NEWS IN BRIEF

Two overseas cases of variant influenza A(H1N1) infection

Two laboratory confirmed human cases of infection with swine influenza A(H1N1) variant viruses in Italy and Switzerland were reported by the World Health Organization (WHO) recently.

The case in Italy affected a male in his 40's with underlying obesity (body mass index > 30 kg/m²). He presented with rhinitis, cough, fever and dyspnoea in October 2016. His clinical condition subsequently deteriorated with development of bilateral pneumonia and severe acute distress respiratory syndrome requiring mechanical ventilation and extracorporeal membrane oxygenation. He was treated with oseltamivir. After a month of hospitalisation, he was discharged in good health. Phylogenetic analysis of the virus isolated from the patient indicated that it was closely related to the European avian-like swine influenza A(H1N1) viruses circulating in swine populations in Italy in recent years. According to information provided by Italian health authorities, he had contact with pigs on a pig farm and nasal swabs collected from weaning pigs in the farm were tested positive for influenza A.

The second case affected a 23-year-old male who worked in a farm with swine in Switzerland. He presented with mild acute respiratory symptoms in late December 2016. The virus isolated from him was found to be closely related to the European avian-like swine influenza A(H1N1) viruses circulating in swine in Europe. Samples from the swine at the farm were also tested positive for influenza A(H1N1) viruses.

According to the WHO, swine influenza A(H1N1) viruses are endemic in pig populations and circulate among swine in many regions of the world. Most human infections with influenza A(H1N1) variant viruses were exposed to the swine influenza viruses through contact with infected swine or contaminated environments. Current evidence suggests that these viruses have not acquired the ability of sustained transmission among humans. (Source of information: WHO)

Workshop for Preparedness of Bioterrorism on February 16 and 17, 2017

Being an international city, Hong Kong is facing the threat of potential bioterrorism. A 1.5-day “Workshop for Preparedness of Bioterrorism” was conducted on February 16 and 17, 2017 to get our healthcare workers prepared for such a threat. A total of 114 participants had attended the workshop and received information from local and overseas speakers. Sessions ranged from information on emerging infectious diseases and potential agents of bioterrorism, to recognition and management of such agents. Specific topics on anthrax and smallpox vaccines, together with the local preparedness against bioterrorism were also delivered. All the information has been uploaded onto the training portal of Infectious Disease Control Training Centre (IDCTC) at http://icidportal.ha.org.hk/sites/en/Lists/Training_Calendar/DispForm.aspx?ID=122&Source=http%3A%2F%2Ficidportal%2Eha%2Eorg%2Ehk%2Fsites%2Fen%2Fdefault%2Easpx.



Photo 1 - Group photo for guests and Dr TY WONG, Head (ICB) on February 16, 2017.



Photo 2 - Sharing in Round Table Meeting on February 17, 2017.

A sporadic case of *Streptococcus suis* infection

On February 17, 2017, the Centre for Health Protection (CHP) recorded a case of *Streptococcus suis* infection affecting a 74-year-old woman with underlying illnesses. She presented with bilateral knee pain on February 11 and was admitted to a public hospital on February 14. Her blood sample collected on February 15 grew *Streptococcus suis*. Her clinical diagnosis was sepsis and she was treated with antibiotics. She remained in stable condition. She had handled raw pork at home but denied any previous skin wound or contact with pigs. Her home contacts remained asymptomatic.

A probable sporadic case of Creutzfeldt-Jakob disease

On February 22, 2017, CHP recorded a probable case of sporadic Creutzfeldt-Jakob disease (CJD) affecting a 67-year-old woman with underlying illnesses. She initially presented to a medical practitioner for rapidly progressive cognitive impairment since April 2016. Subsequently, she was admitted to a public hospital in January 2017 and was found to have dysphagia, dysphasia, akinetic mutism and myoclonus. Electroencephalography and imaging findings were compatible with CJD. Her condition was stable in hospital. She had no known family history of CJD and there were no reported risk factors for iatrogenic or variant CJD. She was classified as a probable case of sporadic CJD.

A sporadic case of psittacosis

On February 23, 2017, CHP recorded one sporadic case of psittacosis affecting an 80-year-old male with underlying illnesses. He presented with fever and cough with sputum on February 11 and was admitted to a public hospital on February 16. His clinical diagnosis was severe pneumonia with pleural effusion and he required intensive care. He was treated with antibiotics and he required pleural drainage, invasive mechanical ventilation and haemofiltration. His nasopharyngeal aspirate (NPA) collected on February 17 was tested positive for *Chlamydia psittaci* DNA by PCR. His condition deteriorated and he passed away on February 19. According to his next of kin, he had no contact history of birds or bird droppings during incubation period. He had travelled to Guangdong alone during late January and early February. His home contact was asymptomatic.

A sporadic case of human myiasis

On February 24 2017, CHP recorded a sporadic case of human myiasis affecting an 88-year-old male with pre-existing medical conditions. He resided in a residential care home for the elderly (RCHE) and required assistance in daily activities. He was brought to the Accident and Emergency Department of a public hospital for oral bleeding on February 21 and was admitted on the same day. Maggots collected over the wound were identified as *Chrysomya bezziana* larvae. His clinical condition remained stable. He had no recent travel history. His contacts in the RCHE were asymptomatic. Health advice on personal care and environmental hygiene was given to the institution.