



Recent Topic: New case of MERS-CoV identified in the United Kingdom (UK)

A new case of Middle East respiratory syndrome coronavirus (MERS-CoV) has been confirmed by Public Health England on August 2018. This is the 5th case of MERS diagnosed in England, with two previous cases imported from the Middle East in 2012-13, and two as a result of onward transmission.

The patient is a male aged between 80-89 years with underlying chronic medical conditions. He is a resident of Saudi Arabia and had history of direct contact with camels in his country before the onset of symptoms. On 16 August, while symptomatic, the patient travelled by aircraft from Saudi Arabia to UK. He is currently stable and receiving treatment.

Contact tracing is ongoing including the contacts of the patient in the community, family and health care facilities. Passengers on the flight within three rows of the case have been contacted and provided with information. The patient's immediate family contacts have been screened and all nasopharyngeal samples tested negative for MERS-CoV by PCR.

Between 2012 and 31 July 2018, 2,237 laboratory-confirmed cases of MERS-CoV infection have been reported by 27 countries. 793 of them have died (crude case fatality rate 35.5%). Over 80% of cases were reported by Saudi Arabia. Healthcare associated transmission has been documented with varying outbreak sizes (2-180 reported cases per outbreak). According to WHO's summary of current situation, the reproduction number (R0) of MERS-CoV outbreaks in

health care settings can have $R > 1$, but they can be brought under control ($R < 1$) with adequate and complete compliance with the infection control measures and early isolation of subsequent cases.

The largest outbreak of MERS-CoV outside of the Middle East occurred in Korea in 2015, which involved 186 cases (including one case who travelled to China) and 39 deaths. The majority of transmission events (83%) have been related to 5 super-spreaders, and 82 patients had been exposed in nosocomial transmission at 16 hospitals. MERS-CoV was detected on surfaces inside patient rooms and on equipment during patients' stay and after discharge or death. These findings highlighted the importance of meticulous cleaning and disinfection of patient rooms.

The Hajj pilgrimage ended in late August. Imported cases of MERS-CoV are not unexpected. Health care workers should remain vigilant for patients with respiratory symptoms among travelers returning from the Middle East, especially following contacts with camels or healthcare facilities in the region.

References:

- Public Health England - MERS-CoV case in England <https://www.gov.uk/government/news/mers-cov-case-in-england>
- WHO - MERS Global Summary and Assessment of Risk http://www.who.int/csr/disease/coronavirus_infections/risk-assessment-august-2018.pdf?ua=1
- Oh, M. et al. (2018). Middle East respiratory syndrome: what we learned from the 2015 outbreak in the Republic of Korea. *The Korean Journal of Internal Medicine*, 33(2), 233-246.

Latest Epidemiology: Unusual Early Start and Rise in West Nile fever (WNF) cases in Europe

West Nile virus (WNV) infections in Europe and the neighboring countries have sharply increased in 2018 as compared to the previous 4 years. This unusual early start and high number of WNF infections is associated with the high temperatures and extended rainy spells, followed by dry weather. Such weather conditions favor the mosquito breeding and propagation.

According to European Centre for Disease Prevention and Control (ECDC), a total of 710 human infections has been reported this year (as of 30 August). During the current transmission season, 77 outbreaks among equids have been reported by Italy (41), Hungary (31) and Greece (5). WNV infection is transmitted to humans through the bite of an infected mosquito, primarily of *Culex* genus. Although 80% of infected people will show no symptoms, in 20% of cases the virus will develop into WNF – a febrile, influenza-like illness characterized by an abrupt onset of moderate to high fever with headache, sore throat, muscle and joint pain,

backache, fatigue, nausea and diarrhoea.

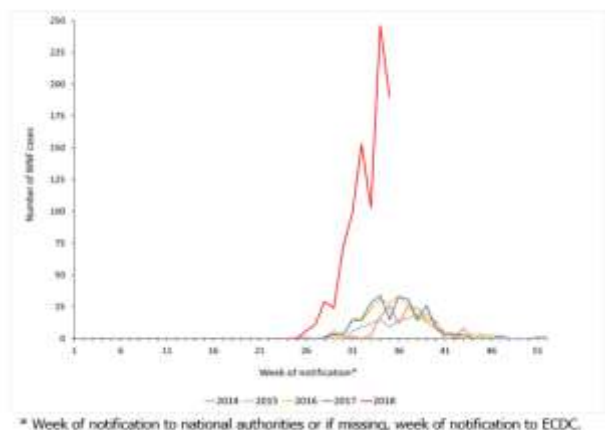


Figure 1: Notification of WNF in the European Union

References:

- WHO - WNV infections spike in southern and central Europe <http://www.euro.who.int/en/countries/italy/news/news/2018/8/west-nile-virus-infections-spike-in-southern-and-central-europe>
- ECDC - WNV infections <https://ecdc.europa.eu/en/west-nile-fever>

Viral hepatitis

Viral hepatitis is a statutorily notifiable disease in Hong Kong. Acute infection may be asymptomatic or limited symptoms such as fever, malaise, anorexia, nausea, abdominal discomfort, followed by jaundice and dark urine. There are 5 major hepatitis viruses, referred to as types A, B, C, D and E (see table 1). Recently, a possible transmission of donor-derived hepatitis E (HEV) infection has been reported. This has reinvigorated discussion of safety of blood, tissues and organs versus the risk of HEV transmission via dietary exposure to meat products.

HEV has been found worldwide and transmitted through the faecal-oral route due to contamination of drinking water or consumption of uncooked meats of pigs, chickens, deer and shellfish etc. A study was conducted locally in 2009 to assess the prevalence of HEV in pig livers and the genetic relationship between HEV identified from pigs and human cases. All positive roaster pig liver samples were sequenced and belonged to genotype 4. Same gene partial sequences were identified between some HEV isolates from pig samples and human cases.

It was suggested that inadequately cooked pig livers could be one possible source for hepatitis E in Hong Kong. Transmissions of HEV through transfusion and transplantation have also been reported. The virus has at least 4 main genotypes that can infect humans: genotypes 1, 2, 3 and 4. Cases of chronic hepatitis E infection have been reported in immunosuppressed people, particularly organ transplant recipients on immunosuppressive drugs, with HEV genotype 3 or 4 infection. In 2016, there was a report of post liver transplantation HEV infection with genotype 7 linked to regular consumption of camel meat and milk.



Photo 1: Undercooked pig liver
(Source: Centre for Food Safety)

Table 1: Comparison of major characteristics among viral hepatitis A, B, C, D and E

Virus	HAV	HBV	HCV	HDV	HEV
Family	Picornaviridae	Hepadnavirus	Flaviviridae	Deltavirus	Hepeviridae
Nucleic Acid	RNA, non-enveloped	DNA, enveloped	RNA, enveloped	RNA, enveloped	RNA, non-enveloped
Incubation period	15 – 50 days	45-160 days	15 – 150 days	30 – 180 days	15 - 70 days
Major route of transmission	Faecal-oral	Parenteral; sexual	Parenteral	Parenteral; sexual (HDV infection occurs only simultaneously / super-infection with HBV)	Faecal-oral; consumption of uncooked meat/ raw pork
Usual onset	Acute	Insidious / acute	Insidious	Insidious / acute	Acute
Severity	Mild or asymptomatic	Occasionally severe	Moderate	Occasionally to often severe	Mild but severe in pregnant women
Vaccine	Available	Available	Not available	Hepatitis B vaccines provide protection from HDV infection	Licensed in China but not widely available
Documented risk of transmission during transfusion, organ and tissue transplantation	Yes	Yes	Yes	(HDV infection occurs only simultaneously / super-infection with HBV)	Yes

References:

- Current Knowledge on Hepatitis E. (2015). *Journal of Clinical and Translational Hepatology*, 3(2). doi:10.14218/jcth.2015.00009
- Domanović, D., Tedder, R. & Blümel, J. et al. (2017). Hepatitis E and blood donation safety in selected European countries: a shift to screening? *Eurosurveillance*, 22(16), 30514.
- Food and Environmental Hygiene Department. Hepatitis E Virus in fresh pig livers. https://www.cfs.gov.hk/english/programme/programme_rafs/programme_rafs_fm_01_15_HEV_pig_liver.html
- WHO - What is hepatitis? <http://www.who.int/features/qa/76/en/>