



Australian Government
Department of Health

Middle East respiratory syndrome (MERS)

Situation update 10 March 2016

Available from [the Department's website](http://www.health.gov.au/mers-coronavirus) (www.health.gov.au/mers-coronavirus)

Key points

- As of 10 March 2016, the World Health Organization (WHO) global case count for MERS was **1,651** laboratory-confirmed cases, including at least **590 deaths** (case fatality rate 36%) since the first cases were reported in September 2012.¹ There have been thirteen new cases reported during the past four weeks, all from Saudi Arabia (last case reported 25 February 2016).
- All cases of MERS world-wide have had a history of residence in or travel to the Middle East (mainly Saudi Arabia), or contact with travellers returning from these areas, or can be linked to an initial imported case. There have been no cases in Australia.
- Camels are suspected to be the primary source of infection for humans, but the exact routes of direct or indirect exposure are not fully understood, and further studies (particularly case control studies) are needed. There is no evidence of ongoing community transmission in any country and only occasional instances of household transmission. Transmission in health care settings has been a feature of the outbreak.

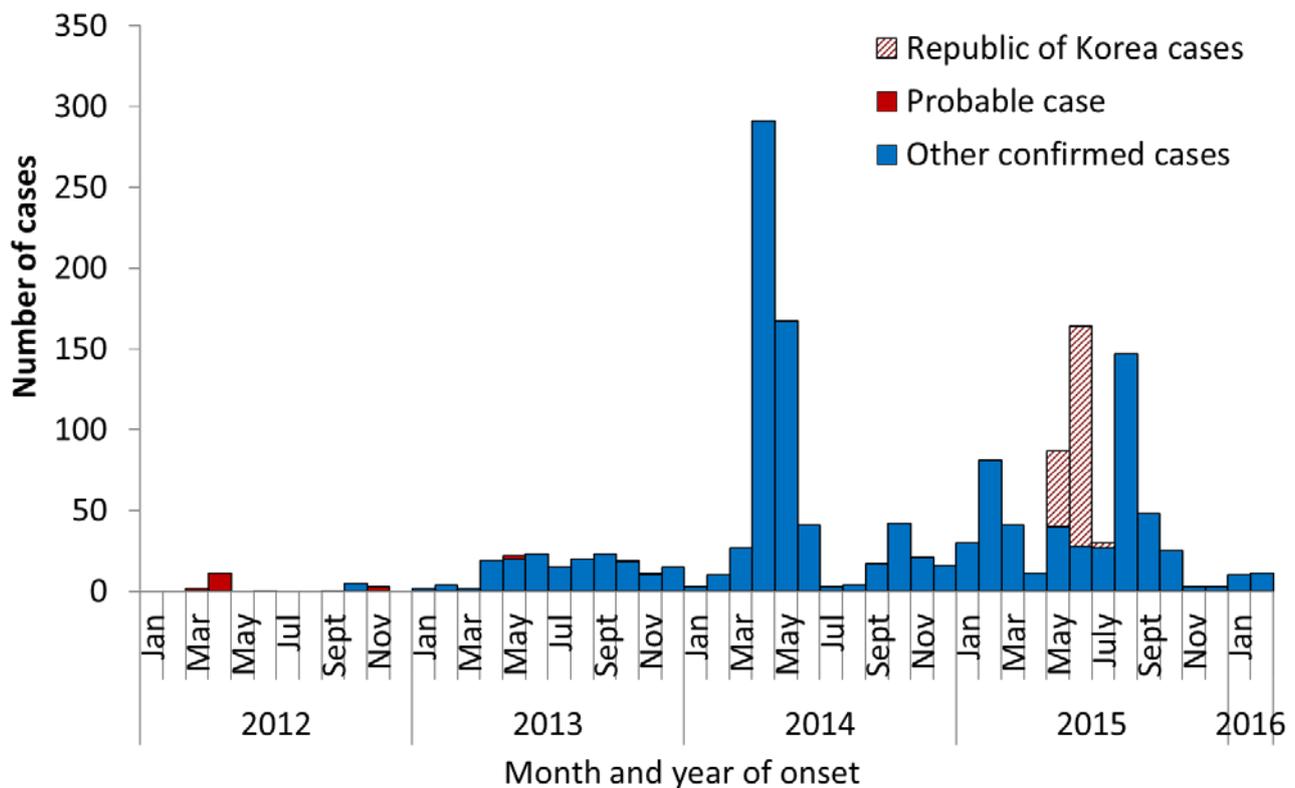


Figure 1: Epidemic curve of confirmed and probable MERS cases by confirmation status; as of 10 March 2016. An additional 132 confirmed cases in Saudi Arabia with onset dates between 1 May 2013 and 15 May 2014 are not included in the epicurve because individual onset dates are not available. Specimen or reporting dates used where no onset date is available.

Actions taken to date and next steps

- The IHR Emergency Committee on MERS convened by the WHO Director General is chaired by Australia's Chief Medical Officer. The committee has met 10 times, most recently on 2 September 2015. The outcomes of the meeting are available from the WHO website (<http://www.who.int/mediacentre/news/statements/2015/ihr-emergency-committee-mers/en/>)
- A national guideline on the public health management of MERS in the event of a case in Australia was developed by the Communicable Diseases Network Australia and endorsed by the Australian Health Protection Principal Committee (AHPPC). The guideline is available from [the Department's website](http://www.health.gov.au/MERS-coronavirus) - (www.health.gov.au/MERS-coronavirus).
- Information on MERS for consumers, for clinicians, labs and public health personnel and for GPs was revised and re-issued on 14 September 2015 can be accessed from [the Department's website](http://www.health.gov.au/MERS-coronavirus) - (www.health.gov.au/MERS-coronavirus). The Department is working with states and territories through AHPPC and its standing committees.
- The Public Health Laboratory Network had advised that suitable PCR-based tests are available to diagnose the infection if required.
- The Department of Foreign Affairs and Trade (DFAT) has issued a Smartraveller bulletin on MERS and country-specific advice for affected areas of the Middle East link to the MERS bulletin. The advice is available from [DFAT's website](http://www.smartraveller.gov.au/) (www.smartraveller.gov.au/) and is being regularly updated in consultation with the Department of Health.

Next steps

- Continue monitoring, and respond as required.

WHO advice on prevention and control

- The WHO emphasises the need for universal application of standard infection control precautions, and transmission-based precautions when in contact with suspected or confirmed cases, and that it is not possible to distinguish MERS from other respiratory infections.
- On 2 September 2015, the WHO IHR Emergency Committee advice included that further to previous advice, national authorities should:
 - Ensure the readiness of all health care facilities;
 - Collaborate across human and animal health sectors;
 - Ensure the rapid and timely sharing of all information of public health importance;
 - Ensure a flexible, efficient and well-coordinated whole-of-government response to the challenges posed by MERS.
- The WHO issued guidance on the management of asymptomatic people who are PCR positive for MERS Coronavirus on 27 July 2015. The WHO recommends that if feasible, and in the context of a hospital outbreak, all close contacts of a confirmed case of MERS should be tested for the presence of the virus, whether symptomatic or not. Home or hospital isolation should be put in place for people who test positive. There is some evidence that asymptomatic contacts can carry the virus, and have tested positive, and the potential for transmission from these people is unclear. This guidance is available from [the WHO website](http://apps.who.int/iris/bitstream/10665/180973/1/WHO_MERS_IPC_15.2_eng.pdf?ua=1) (http://apps.who.int/iris/bitstream/10665/180973/1/WHO_MERS_IPC_15.2_eng.pdf?ua=1)

Advice to travellers

- When travelling to areas affected by outbreaks of MERS, if you are around someone who is unwell you should wash your hands often and avoid touching your face. Use a hand sanitiser if soap and water is not available.
- Australians travelling to the Middle East and who are at increased risk of severe disease should avoid contact with camels and their secretions, and avoid drinking raw camel milk. All travellers should

- practise good hand and food hygiene, particularly where camels are present.
- The WHO advises that if travellers develop an acute respiratory illness severe enough to interfere with usual daily activities while travelling or during the two weeks after their return, they should:
 - seek medical attention, informing the health professional of their recent travel,
 - wash their hands regularly and practice respiratory hygiene (cough etiquette etc),
 - and, minimise their contact with others to keep from infecting them.
- Australians travelling to the Middle East or other areas affected by MERS outbreaks to work in healthcare settings (including in healthcare settings in the RoK) should note the advice to healthcare workers on infection control available from the WHO, the CDC and the destination country.

Epidemiological update

Middle East and world-wide

As of 10 March 2016 the World Health Organization (WHO) global case count for MERS was **1,651** laboratory-confirmed cases, including at least **590 deaths** (case fatality rate 36%) since the first cases were reported in September 2012.¹

For cases where information is available, 68% are male and the median age is 54 years. Most cases of MERS world-wide have been reported from, or were acquired in, Saudi Arabia (at least 80%).

New infections continue to comprise those acquired in healthcare settings including in a small numbers of cases in healthcare workers, a small number of primary cases, which are thought to have been acquired through contact with camels and/or raw camel milk and some cases for whom no clear exposure or source of infection can be identified.

The thirteen cases reported in Saudi Arabia during the past four weeks were:

- An asymptomatic healthcare worker linked to two other cases, one of which had frequent contact with camels and consumed their raw milk;
- A man who is a brother of a confirmed case who he denied contact with initially;
- Three men with no clear history of exposure to known risk factors
- A man who had frequent contact with camels and consumed their raw milk; and,
- Five men where the investigations into the history of exposure to known risk factors are ongoing.

Since the beginning of the outbreak, cases of MERS that were acquired from an unknown source in-country or from possible zoonotic transmission have occurred in Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia, United Arab Emirates (UAE) and Yemen. Imported or import-related cases have been reported from Algeria, Austria, China, Egypt, France, Germany, Greece, Italy, Malaysia, Netherlands, Philippines, Republic of Korea, Thailand, Tunisia, Turkey, United Kingdom (UK) and United States of America (USA).

A recent study found that in healthcare settings, a short period without protective equipment may be sufficient for transmission, with a security guard in the RoK who was within 3 to 6 feet of a fatally-ill patient for 10 minutes without a mask, and without touching the patient, acquiring the infection.² The potential for transmission from asymptomatic (but PCR positive) people is currently unclear. However, there is evidence of asymptomatic carriage of the virus. One study found that on day 12 after a first positive test, 30% of asymptomatic or mildly symptomatic persons (n=13) that had been in contact with a case remained positive for viral RNA in the upper respiratory tract.³ A case report has found that viral RNA was detectable for over a month after exposure in an asymptomatic health care worker in Jeddah, Saudi Arabia.⁴ Transmission to household contacts occurs at low levels, estimated at 5% of household contacts, and low levels of viral RNA may be carried without obvious symptoms, particularly in younger people.⁵ Prolonged shedding by some individuals might explain the large outbreaks seen in health care settings. A recent study based on

sequencing of isolates from the RoK and China has found a number of substitutions in the virus, which are now also found in Saudi isolates.⁶ The substitutions are likely to have occurred in late 2014, and the authors speculate that the change in the virus may have led to increased transmissibility, and contributed to the size of the outbreak in the RoK.

Dromedary camels are the suspected source of infection, but the exact routes of direct or indirect exposure are not fully understood.⁷ Evidence of past (over two decades) and current carriage and/or infection has been found in a large number of camels from various regions of the Middle East and elsewhere, in some cases with epidemiological links to human cases, and some with matching sequences to human cases from the same areas.^{8,9,10,11} The area of risk for MERS may extend into regions beyond the Middle East.¹² There is no evidence that Australian camels have antibodies to MERS, based on a study of 307 blood samples from 307 wild camels from two different regions.¹³

In camels, acute infection is more likely to affect young animals, while older animals are more likely to have evidence of past infection.¹⁴ A large sero-survey in Saudi Arabia found evidence of past MERS Coronavirus infection in 2.3% (2/87) of people who work as camel shepherds and 3.6% (5/140) of slaughterhouse workers, and 0.2% (15/10,009) of healthy people in the general population. Similarly, a large sero-survey in Qatar found serological evidence of past infection in healthy camel slaughterhouse workers (7/109 positive) and camel farm workers (12/177 positive) in areas with demonstrated MERS-CoV circulation amongst the camels, and no evidence of past infection in people without contact with camels.¹⁵ These results suggest that individuals with subclinical infection could be the source of infection for cases of MERS who have no contact with camels and no contact with a confirmed case. They also suggest that the current reported case fatality rate of 35% is over-estimated because mild or asymptomatic cases may not be detected. Two cases in

MERS Coronavirus infection can cause severe acute respiratory disease, particularly in people with underlying conditions. People with diabetes, renal failure, chronic lung disease and immunocompromised persons are at higher risk of severe disease.¹ The WHO recommends people at high risk of severe disease due to MERS, including those with diabetes, chronic lung disease, pre-existing renal failure, or those who are immuno-compromised, take appropriate precautions when visiting farms, barn areas or market environments where camels are present. These measures might include avoiding contact with camels, good hand hygiene, and avoiding drinking raw milk or eating food that may be contaminated with animal secretions or products unless they are properly washed, peeled, or cooked. For the general public, when visiting a farm or a barn, general hygiene measures, such as regular hand washing before and after touching animals, avoiding contact with sick animals, and following food hygiene practices, should be adhered to.⁷

In addition to these measures recommended by the WHO, a vaccine for camels may be a useful means of preventing spread amongst camels and to humans. A candidate vaccine based on a highly attenuated vaccinia virus, and known as MVA-MERS-CoV has shown promising results in an early small trial; with the four animals in the treatment group developing neutralising antibody to MERS-CoV, and viral titres in the treatment group significantly lower than for the control group after MERS-CoV challenge.¹⁶

RoK outbreak

The WHO reported 186 cases including 36 deaths in the outbreak in the RoK in 2015. The Ministry of Health and Welfare of the RoK declared that transmission of MERS-CoV in South Korea ended on 23 December 2015. The last MERS patient in the country was a 35 year old male who passed away on 25 November 2015 due to complications of an underlying disease.

Further information

The latest case counts and documents, including recommendations for laboratory testing and advice to travellers are available from the WHO:

- [Coronavirus infections](http://www.who.int/csr/disease/coronavirus_infections/en/) – (www.who.int/csr/disease/coronavirus_infections/en/)

CDNA advice to clinicians, laboratories and public health personnel and to GPs, as well as a fact sheet for consumers/patients and an epidemiological summary are available from:

- [The Department's website](http://www.health.gov.au/mers-coronavirus) – (www.health.gov.au/mers-coronavirus)
- [CDNA national guidelines page](http://www.health.gov.au/cdnasongs) (www.health.gov.au/cdnasongs)

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