Middle East respiratory syndrome coronavirus (MERS-CoV)

Situation update 12 March 2015

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

Key points

- As of 10 March 2015, the World Health Organization (WHO) global case count was 1,060 laboratory-confirmed cases of MERS-CoV, including at least 394 deaths (case fatality rate 37%) since the first cases were reported in September 2012.¹
- There have been 76 cases with onset dates in February 2015, a marked increase compared with the 30 cases in January 2015. This increase is attributable to a rise in transmission in healthcare settings.
- The WHO and partners concluded a joint expert advisory mission to Saudi Arabia in late February 2015 and identified key areas that should be addressed to control MERS-CoV.
- All cases have had a history of residence in or travel to the Middle East (>90% Saudi Arabia), or contact with travellers returning from these areas. There have been no cases in Australia.
- 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-CoV from other respiratory infections.¹²
- MERS-CoV 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
- 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. The WHO advises that people should avoid drinking raw camel milk or camel urine, or eating meat that has not been properly cooked.
- There is no evidence of ongoing community transmission, but limited transmission in healthcare settings has been a feature of the outbreak.

Figure: Epidemic curve of 928 confirmed and 18 probable MERS-CoV cases by confirmation status; as of 10 March 2015.¹ An additional 132 confirmed cases (84+48) are not included in the epicurve because individual onset dates are not available.
**Actions taken to date and next steps**

- The IHR Emergency Committee on MERS-CoV convened by the WHO Director General is chaired by Australia’s Chief Medical Officer. The committee has met seven times, most recently by teleconference on 4 February 2015. The outcomes are available from the WHO website (http://www.who.int/mediacentre/news/statements/2015/8th-mers-emergency-committee/en/)
- Information on MERS-CoV for consumers, for clinicians, labs and public health personnel and for GPs can be accessed from the [Department's website](http://www.health.gov.au/MERS-coronavirus).
- A national guideline on the public health management of MERS-CoV, in the event of a case in Australia has been developed by the Communicable Diseases Network Australia and endorsed by AHPPC and made available on the Department’s website.
- The Chief Medical Officer held teleconferences with relevant medical Colleges and peak medical bodies to raise awareness on 4 June 2013 and 5 June 2014.
- The Department is working with states and territories through the Australia Health Protection Principal Committee (AHPPC) and its standing committees.
- The Public Health Laboratory Network has provided advice on the availability of testing for MERS-CoV in Australia. Suitable PCR-based tests are available to diagnose the infection if required. Serological tests for MERS-CoV are not currently available in Australia for humans.
- The Department of Foreign Affairs and Trade (DFAT) has issued a Smartraveller bulletin on MERS-CoV and country-specific advice for affected areas of the Middle East link to the MERS-CoV bulletin. The advice is available from DFAT’s website (www.smartraveller.gov.au/)

**Next steps**

- Continue monitoring, and respond as required.

**Advice to travellers**

- 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 to work in healthcare settings should note the advice to healthcare workers on infection control available from the WHO, the CDC and the destination country.

**WHO expert mission to Saudi Arabia**

The WHO and partners concluded a joint expert advisory mission to Saudi Arabia in late February 2015 and identified key areas that should be addressed to control MERS-CoV. The mission, along with Saudi health authorities identified that key areas that should urgently be addressed are:

- Understanding the modes of zoonotic infection and transmission;
- Filling critical knowledge gaps in the science and epidemiology of MERS-CoV by conducting further research studies and by sharing the findings rapidly;
- Improving infection prevention and control in health care settings;
- Intensifying social mobilisation, community engagement activities and communications and intersectoral cooperation and coordination.
Epidemiological update

As of 10 March 2015, the World Health Organization (WHO) global case count was 1,060 laboratory-confirmed cases of MERS-CoV, including at least 394 deaths (case fatality rate 37%) since the first cases were reported in September 2012.\(^1\)

There have been 76 cases with onset dates in February 2015, a marked increase compared with the 30 cases in January 2015. This increase is attributable to a rise in transmission in health care settings in Saudi Arabia. During February 2015, there have been at least 10 identified clusters in Saudi Arabia, nine occurring in healthcare settings and the other involving household transmission. The largest cluster is in Dammam City and involves at least 12 cases. Between November 2014 and February 2015, 62 cases (43%) are probable secondary transmission, with household/healthcare contact with a confirmed case, or healthcare related exposures during the 14 days prior to onset.

More than 90% of all cases since the beginning of the outbreak have been reported from, or are related to exposures in Saudi Arabia, and all but 7 of the 143 cases since 1 November 2014 have related to exposures in Saudi Arabia, except for three cases in Oman (in a household cluster where the index case had contact with camels), two cases in or related to the United Arab Emirates (one of them Germany-ex-UAE) and two cases in Qatar.

Sporadic cases have more frequently had severe symptoms, and have been older, male and with underlying conditions. Mild and asymptomatic cases have tended to be of a range of ages, including children, and without underlying conditions.\(^1\), \(^3\) MERS-CoV continues to cause symptomatic disease primarily in older males with a range of underlying conditions. Of the 143 cases with onsets since 1 November 2014, 74% are male and the median age is 57 years. Nearly half of all of these recent cases have diabetes (Table).

**Table: Reported co-morbidities for the 60 cases of MERS-CoV with onset or specimen dates between 1 November 2014 and 28 February 2015.**

<table>
<thead>
<tr>
<th>Co-morbidity</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Any underlying condition</td>
<td>37</td>
<td>26%</td>
</tr>
<tr>
<td>Diabetes</td>
<td>70</td>
<td>49%</td>
</tr>
<tr>
<td>Heart disease</td>
<td>26</td>
<td>18%</td>
</tr>
<tr>
<td>Hypertension</td>
<td>61</td>
<td>43%</td>
</tr>
<tr>
<td>No underlying conditions</td>
<td>33</td>
<td>23%</td>
</tr>
<tr>
<td>Not stated/unknown</td>
<td>4</td>
<td>3%</td>
</tr>
</tbody>
</table>

There have been no cases related to the 2014 Hajj. The decrease in case numbers since April and May 2014 follows the seasonal pattern observed previously, however, the increase in February 2015 is earlier in the year than previous increases. In mid-2014, the Saudi Ministry of implemented of a package of control measures, which included an intensive roll-out of training for healthcare workers in infection control and new standards for the surveillance and reporting of MERS-CoV.\(^4\) These additional measures were acknowledged by the WHO IHR. The Saudi Ministry of Health has conducted several reviews of surveillance, resulting in the updating of case numbers from earlier time periods and increases in case numbers.\(^5\), \(^6\), \(^7\) The recent spike in transmission in healthcare settings reinforce the need for further strengthening of these measures.

All cases of MERS-CoV have had a history of residence in or travel to the Middle East, or contact with travelers returning from these areas. The infection has occurred in the community (sporadic cases with unknown exposure), in families (contact with infected family members) and in health care facilities (patients...
and healthcare workers) from whence the majority of cases have been reported. 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. A case report has found that viral DNA was detectable for over a month after exposure in an asymptomatic health care worker in Jeddah, Saudi Arabia. While this does not show that the health care worker was capable of infecting others, and no detail is given about whether this is suspected, prolonged shedders might explain the large outbreaks seen in health care settings.

Dromedary camels are the suspected source of infection, but the exact routes of direct or indirect exposure are not fully understood. 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. The area of risk for MERS-CoV may extend into regions beyond the Middle East. In camels, acute infection is more likely to affect young animals, while older animal are more likely to have evidence of past infection. An absence of serological evidence of past infection in the abattoir workers shows that instances of animal to human transmission may be uncommon. A recent study found that transmission from infected camels to humans is probably rare, with no evidence of past/current infection amongst a group of 45 people who had some contact (including 4 people with very close daily contact) with camels that had demonstrated two-month history of infection. However, the authors did not detail what proportion of the people may have had the underlying conditions that are known to be associated with sporadic cases of MERS-CoV. Between November 2014 and February 2015, 21 of the 143 cases (15%) had direct contact with camels and/or drank raw camel milk.

The WHO recommends people at high risk of severe disease due to MERS-CoV, 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.

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

- Coronavirus infections – (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:


References


