Update: Middle East Respiratory Syndrome Coronavirus (MERS-CoV)

Key messages

- This CHO Alert is an update to the CHO Alert dated 28 June, 2013 for Middle East Respiratory Syndrome Coronavirus (MERS-CoV). Please note the update to case numbers. Also note the list of Arabian Peninsula and surrounding countries and periods of travel for surveillance and testing purposes and the new recommendations regarding lower respiratory tract and repeat specimens.
- As of 7 July 2013, (MERS-CoV) has been identified in 80 patients in or from Saudi Arabia, Qatar, UK, France, Italy, Germany, Tunisia, Jordan and the United Arab Emirates (UAE) associated in most cases with a severe acute pneumonia. 44 cases (55%) have died.
- Patients with pneumonia or pneumonitis with a history of travel to, or residence in, the Arabian Peninsula in the 14 days before illness onset, or contact with known confirmed or probable cases in the 14 days before illness onset should be isolated.
- Clinicians should be aware of atypical non-respiratory presentations in immunocompromised patients but testing for MERS-CoV should be performed in patients with radiological evidence of pneumonitis with the appropriate travel/contact history.
- The WHO does not recommend that any travel restrictions are applied with respect to this event. Follow WHO advice on clinical management.

What is the issue?

Coronaviruses are a large and diverse family of viruses that include viruses that are known to cause illness in humans (including the common cold) and animals. MERS-CoV has never previously been detected in humans or animals but appears most closely related to coronaviruses previously found in bats. It is genetically distinct from the SARS CoV, and appears to behave differently.
Case Definitions

1. Confirmed case - a person with laboratory confirmed infection with MERS-CoV.

2. Probable case –
   - A person with an acute respiratory infection with clinical, radiological or histopathological evidence of pulmonary parenchymal disease eg pneumonia or Acute Respiratory Distress Syndrome (ARDS), AND
   - No possibility of laboratory confirmation for MERS-CoV either because the patient or samples are not available for testing; AND
   - Close contact* with a laboratory-confirmed case.

*Close contact includes:
   - anyone who provided care for the patient or who had other similarly close physical contact; this includes health care workers or family members
   - anyone who stayed at the same place as a probable or confirmed case while the case was symptomatic, including hospital room contacts.

What is the current situation?

- The first 2 reported cases infected by the novel agent occurred in June and September 2012, respectively. As of 7 July 2013, a total of 80 cases had been confirmed by the WHO including 44 deaths.
- Almost all cases are known to have occurred in people with underlying conditions that predisposed them to respiratory infections, in many cases, multiple underlying conditions.
- Countries where cases acquired infection in-country from an unknown source or through person-to-person transmission are Jordan, Kingdom of Saudi Arabia, Qatar, and the United Arab Emirates.
- Countries where cases are imported (a patient transferred for medical care), associated with travel or contact with a returned infected traveller are Germany, France, Tunisia, Italy and the United Kingdom.

Clusters

- Jordan, April 2012 – 2 confirmed cases, 9 probable cases in a healthcare setting.
- Saudi Arabia, October 2012 – 3 confirmed cases and 1 probable case in a family.
- Saudi Arabia, February 2013 – 3 cases in a family in Riyadh.
- United Kingdom, February 2013 – 3 cases (one returned traveller from Pakistan and Saudi Arabia, and his two adult children).
- Saudi Arabia, April-May 2013 – 23 confirmed and 11 probable cases, hospital associated, Al-Ahsa, Eastern Province.
- France, May 2013 – 2 cases (a returned traveller from Dubai, Arab Emirates and his hospital contact in Lille France).
- Tunisia, May 2013 – 1 probable case in a traveller returning from Saudi Arabia, 2 confirmed cases in family members.
- Italy, May 2013 – 1 confirmed case in a traveller returning from Jordan, 2 confirmed cases in contacts (niece and co-worker).

Who is at risk?

Individuals with a history of travel to, or residence in the Arabian Peninsula in the 14 days before illness onset, and individuals with pneumonia or pneumonitis and history of contact with them in the 14 days before illness onset.

Nearly half of all confirmed cases have occurred in healthcare-associated clusters, and there have been a small number of cases in health-care workers.
Symptoms and transmission

Almost all confirmed cases have presented with, or later developed, acute, serious respiratory illness. Typical symptoms have included fever, cough, shortness of breath, and breathing difficulties. A small number of cases have presented with mild influenza-like symptoms or been asymptomatic. An immunocompromised patient with pneumonitis presented with atypical non-respiratory symptoms (including fever and diarrhoea).

The particular conditions or procedures that lead to transmission in hospital settings have not yet been determined. Infection control recommendations for probable and confirmed cases aim to provide the highest level of protection for health care workers, given the current state of knowledge. Health care workers should follow the NHMRC’s Australian Guidelines for the Prevention and Control of Infection in Healthcare (2010), particularly section B2.4. (see: http://www.nhmrc.gov.au/guidelines/publications/cd33)

Testing

Testing should be considered for:

1. Individuals with pneumonia or pneumonitis and history of travel to, or residence in, the Arabian Peninsula, in the 14 days before illness onset.
   - Transiting through an international airport (<24 hours stay, remaining within the airport) on the Arabian Peninsula is not considered to be a risk factor for infection.
   - Countries in the Arabian Peninsula and immediate surrounding areas may be defined as Bahrain, Iraq, Iran, Israel, Jordan, Kuwait, Lebanon, Oman, Palestinian territories, Qatar, Saudi Arabia, Syria, the United Arab Emirates (UAE), and Yemen.

2. Individuals with pneumonia or pneumonitis and history of contact with those in point 1 above in the 14 days before illness onset.

3. Health care workers with pneumonia, who have been caring for patients with severe acute respiratory infections, particularly patients requiring intensive care, without regard to place of residence or history of travel, where another cause has not been confirmed.

Clinicians should be aware of atypical non-respiratory presentations in immunocompromised patients but testing for MERS-CoV should be performed in patients with radiological evidence of pneumonitis with the appropriate travel/contact history.

How to test for MERS-CoV:

- Testing should only be carried out after discussion with the Communicable Prevention and Control Section at the Department of Health and only where MERS-CoV is strongly suspected on clinical and epidemiological grounds.
- Routine tests for acute pneumonia should be performed where indicated, including bacterial culture, serology, urinary antigen testing and tests for respiratory viruses.
- Respiratory samples including upper respiratory tract viral swabs, nasopharyngeal aspirates, sputum, bronchoalveolar lavage fluid, lung biopsies and post-mortem tissues are suitable for testing for MERS-CoV. Lower respiratory tract specimens should be collected where possible.
- The WHO emphasises repeat testing (especially of lower respiratory tract specimens) in compatible cases as initial results may be negative.
- Transmission-based contact and airborne precautions must be used when taking respiratory specimens. These are described in NHMRC: Australian Guidelines for the Prevention and Control of Infection in Healthcare – 2010 (particularly section B2.4), and include the requirement for negative pressure air-handling and PPE including the use of gloves, gowns, P2 (N95) respirators, eye protection and hand hygiene.
- Laboratory staff should handle specimens under PC2 conditions in accordance with AS/NZS 2243.3:2010 Safety in Laboratories Part 3: Microbiological Safety and Containment.
• The Communicable Prevention and Control Section will authorise testing and advise VIDRL to expect the samples, which should be transported in accordance with current regulatory requirements.

Prevention/treatment
In patients with pneumonia or pneumonitis with a travel history from the Arabian Peninsula or contact with known confirmed or probable cases within two weeks of illness onset, the following is recommended:

1. Place the patient in a single room with negative pressure air-handling, and implement transmission-based precautions (contact and airborne), including the use of personal protective equipment (PPE).
2. Investigations and management should be performed as for community acquired pneumonia. Appropriate specimens should also be collected for MERS-CoV PCR testing.
3. Notify the Department of Health of any suspected (and probable or confirmed) cases in order to discuss and co-ordinate testing and management of contacts.

Recommended isolation and PPE recommendations for patients in hospital
These NHMRC recommendations (see: http://www.nhmrc.gov.au/guidelines/publications/cd33) take a deliberately cautious approach that aim to control the transmission of pathogens that can be spread by the airborne route. In summary:

• Place the confirmed and probable cases in a negative pressure room if available, or in a single room from which the air does not circulate to other areas;
• Use airborne transmission precautions, including routine use of a P2 respirator, disposable gown, gloves, and eye protection when entering a patient care area;
• Contact precautions, including close attention to hand hygiene;
• If transfer of the confirmed or probable case outside the negative pressure room is necessary, ask the patient to wear a surgical face mask while they are being transferred and to follow respiratory hygiene and cough etiquette.

More information
Updates on the current situation: http://www.who.int/csr/disease/coronavirus_infections/en/
Clinical management:

Contacts
Advice and disease notifications - Communicable Disease Prevention and Control Section on 1300 651 160.

Yours sincerely

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Authorised by the Victorian Government, Melbourne.