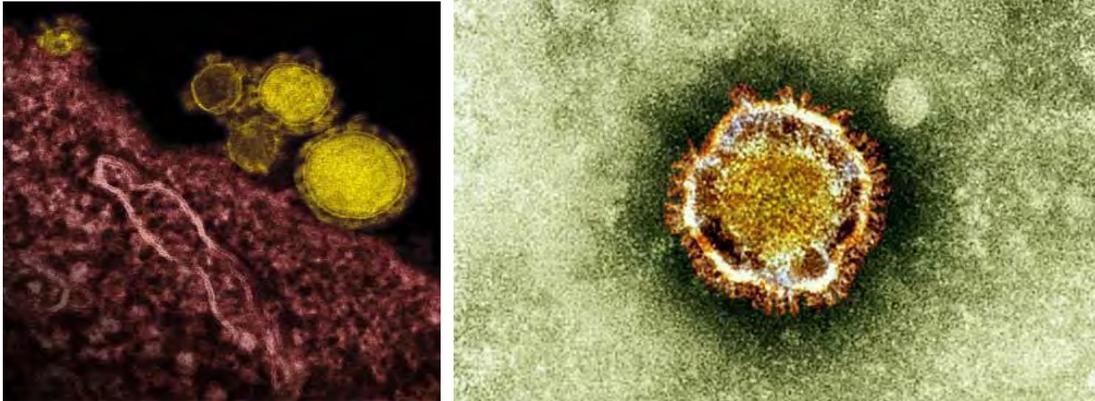


11 June 2015

## Advisory on Middle East Respiratory Syndrome Coronavirus (MERS-CoV)



### Introduction

Middle East Respiratory Syndrome (MERS) is viral respiratory illness caused by a coronavirus called MERS-CoV. MERS-CoV was first reported in Saudi Arabia in 2012 and has since spread to several other countries including the United States. Most people infected with MERS-CoV developed severe acute respiratory illness including fever, cough and shortness of breath. Amongst confirmed cases, at least 40% have died. MERS-CoV can potentially spread further and cause more cases globally.

Until 23 May 2013, MERS-CoV had frequently been referred to as a SARS-like virus. However, MERS-CoV is distinct from SARS – the common-cold coronavirus and known endemic human beta-coronaviruses. The MERS-CoV is a new member of the beta group of coronavirus, beta-coronavirus, lineage C. It is a positive-sense, single-stranded RNA virus. Studies suggest that camels serve as the primary source of the MERS-CoV infecting humans while bats may be the ultimate reservoir of the virus.

There have been no cases of MERS-CoV detected in Singapore thus far. The risk of an outbreak in our local community is low as sustained human-to-human transmission of the virus has not been reported.





As of 11 June 2015, 1271 laboratory-confirmed cases of human infection with Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported to WHO since 2012, including at least 448 deaths. Overall, 66% of cases reporting gender (n=1165) are male and the median age is 49 years (range 9 months–99 years; n=1172).

To date, 25 countries have reported cases, including countries in the Middle East (Figure 1): Egypt, Iran, Jordan, Kuwait, Lebanon, Oman, Qatar, Saudi Arabia (KSA), United Arab Emirates (UAE) and Yemen; in Africa: Algeria, and Tunisia; in Europe: Austria, France, Germany, Greece, Italy, the Netherlands, Turkey and the United Kingdom; in Asia: China, the Republic of Korea, Malaysia and Philippines; and in North America: the United States of America (USA). The majority of cases (>85%) have been reported from KSA. Since May 2015 two new countries have been affected (China and Republic of Korea).

On 20 May, one case of MERS was reported from Republic of Korea. This 68-year old Korean man had recently travelled to KSA, Qatar, UAE and Bahrain. Although he was not ill during this period of travel, he had come into contact with other patients at a Korean hospital before being diagnosed. As of 10 June 2015, South Korea had reported 108 laboratory confirmed cases, nine of whom died. While three were cases of tertiary transmission, all transmission has been limited to household and hospital contacts and were epidemiologically linked to the index case. There is therefore no evidence of sustained community transmission in South Korea. Those infected includes health care workers caring for the patient, patients who were being cared for at the same health care facilities and family members. More than 2,800 people remain quarantined, either at home or in health facilities, and more than 2,000 schools remain closed.

China and Hong Kong are also taking steps to halt the spread of MERS after China's first confirmed case on 29 May– a 44-year-old South Korean man (son of the 68-year-old Korean) who was tested positive for MERS. Health authorities in the southern Chinese province of Guangdong are on high alert about the likely spread of the disease as the patient had taken a bus, crossed a busy border checkpoint from Hong Kong and stayed in a hotel before being taken to hospital. Fortunately, in China, no symptoms were found in 38 people who had been in close contact with him.



On the other hand, Hong Kong health authorities said 29 people had been in close contact with the Korean in Hong Kong. 12 people including three Koreans, have been kept in quarantine and of these, three were showing very mild symptoms.

## Transmission

The virus is primarily spread through airborne and droplet transmission. MERS-CoV has spread from ill people to others through close contact, such as caring for or living with an infected person. Infected people have spread MERS-CoV to others in healthcare settings such as hospitals. These cases have not been known to transmit disease during the time when they have no symptoms. It is important to note that temperature screening may not pick up all imported cases due to the long incubation period (up to 14 days) of MERS-CoV, and the presence of mild and asymptomatic cases.

It is uncertain where the virus came from. However, it is likely to have come from an animal source. Camels and bats have been implicated as natural reservoir for the virus. Amidst the rising fear and unrest, it is reassuring to know that the virus has not been behaving differently. It is direct transmission and not sustained human-to-human-transmission. Cases are all related to the same person who came traveling from the Middle East.

## Symptoms

Most people who got infected with MERS-CoV developed severe acute respiratory illness with symptoms of fever, runny nose, sore throat, cough and shortness of breath. Fatality rate is about 30%. Do note that it is not always possible to identify patients with MERS-CoV early because some have mild or unusual symptoms and some people were reported as having a mild respiratory illness.

## Diagnosis

There are two tests currently available:

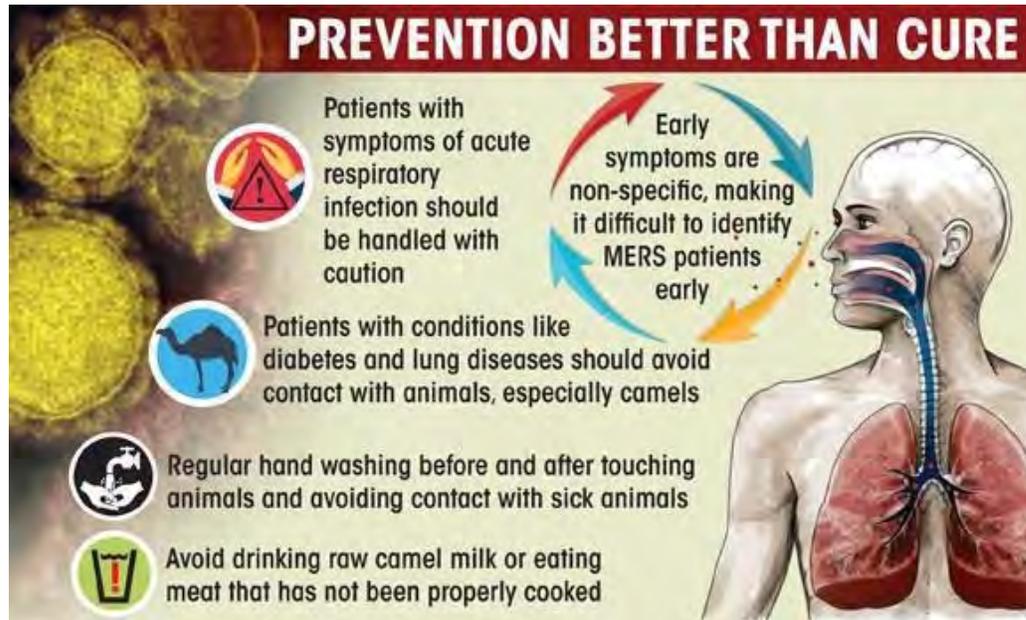
1. Collecting a respiratory sample and using a test called PCR to determine if a person has active infection with the virus.
2. Blood sample to detect antibodies against MERS-CoV that would indicate if a person had a recent infection.

Ministry of Health (MOH) and healthcare institutions remain vigilant to test for MERS-CoV where clinically indicated, such as in-patients with serious respiratory illness and a compatible travel history.



## Treatment

There is no vaccine against MERS-CoV and no specific treatment for MERS currently. Medical care is supportive and to help relieve symptoms. Therefore, prevention is better than cure.



- Protect yourself with your annual flu vaccinations, especially those travelling to or planning to travel to affected countries. This will help prevent infection by influenza (flu), which may have symptoms similar to MERS, leading to unnecessary anxiety, inconveniences and investigations.
- In addition to flu vaccination, travellers to Middle East and Umrah and Haj pilgrims should be vaccinated against meningitis.
- People aged 65 years and above or with chronic medical conditions should also get vaccinated against pneumococcal infections.
- People with pre-existing medical conditions such as diabetes, and chronic heart and lung diseases, should consult a family physician for assessment as to whether making the trip is medically advisable.



## Frequently Asked Questions

**(1) What is MERS?**

Middle East Respiratory Syndrome (MERS) is a viral respiratory illness caused by a coronavirus called “Middle East Respiratory Syndrome Coronavirus” (MERS-CoV).

**(2) What is MERS-CoV?**

MERS-CoV is a beta coronavirus, first reported in 2012 in Saudi Arabia. MERS-CoV used to be called “novel coronavirus,” or “nCoV”. It is different from other coronaviruses that have been previously found in people.

**(3) Is MERS-CoV the same as the SARS virus?**

No. MERS-CoV is not the same coronavirus that caused Severe Acute Respiratory Syndrome (SARS) in 2003.

**(4) Is there a vaccine against MERS-CoV?**

There is no vaccine against MERS-CoV currently.

**(5) What treatment is available?**

Currently, there is no specific treatment for MERS. Medical care is supportive and to help relieve symptoms.

**(6) Which are the countries with lab-confirmed MERS cases?**

**Countries in the Arabian Peninsula with Cases**

- Saudi Arabia
- United Arab Emirates (UAE)
- Qatar Oman
- Jordan
- Kuwait
- Yemen
- Lebanon
- Iran

**Countries with Travel-associated Cases**

- United Kingdom
- France
- Tunisia
- Italy
- Malaysia
- Philippines
- Greece
- Egypt
- United States of America (USA)
- Netherlands
- Algeria
- Austria
- Turkey
- Germany
- South Korea
- China
- Hong Kong



**(7) Can I still travel to countries in the Arabian Peninsula or neighboring countries where MERS cases have occurred?**

Centers for Disease Control and Prevention (CDC) does not recommend that anyone change their travel plans because of MERS. 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 such as avoid consuming unpasteurised milk and undercooked meats and eggs should be adhered to. Travellers are advised to follow standard precautions, such as hand washing and avoiding contact with people who are ill. Prior to overseas travel, one is also encouraged to refer to the MOH web page on MERS-CoV for the latest Health Advisory.

**(8) What if I have recently travelled to countries in the Arabian Peninsula , neighbouring countries in the Middle East as well as South Korea and got sick?**

If you develop a fever and symptoms of respiratory illness such as cough or shortness of breath within 14 days after traveling from Arabian Peninsula and its neighbouring countries or countries with reported cases of MERS, you should minimise contact with others, put on a surgical mask to reduce exposure and proceed to Tan Tock Seng Hospital or KK Women's and Children's Hospital (for children under 16 years of age) for further evaluation, testing and follow up. If you are unsure of your symptoms but suspect that you may be infected with MERS-CoV, you should put on a surgical mask and seek advice and medical attention from your family physician promptly. You should inform the doctor of the areas that you have travelled to and any possible encounter with ill contacts.



**(9) What happens when a case of MERS is suspected?**

All suspected and confirmed cases will be isolated and managed under strict airborne infection control precautions. If a case is detected, MOH will conduct contact tracing when appropriate and all close contacts will be placed under quarantine.



**(10) How can I stay healthy and protect myself?**

- Wash your hands often with soap and water for 20 seconds and help young children do the same. If soap and water are not available, use an alcohol-based hand sanitiser.
- Avoid touching your eyes, nose and mouth with unwashed hands.
- Clean and disinfect frequently touched surfaces, such as toys and doorknobs.
- Cover your nose and mouth with a tissue when you cough or sneeze and throw the tissue in the trash.
- Avoid close contact such as kissing, sharing cups or sharing eating utensils with sick people.
- Avoid consuming unpasteurised milk and undercooked meat and eggs.
- Other general advices to stay healthy:
  - i. Eat a healthy diet
  - ii. Ensure adequate hydration
  - iii. Have adequate sleep and rest
  - iv. Exercise regularly
  - v. Have your annual flu vaccination – especially high-risk groups such as people with pre-existing heart and lung disease, immune-compromised patients and the elderly

Family members and other close contacts of suspect cases should be vigilant for symptoms of MERS and should seek medical attention as soon as possible if they feel unwell.



**ADVICE TO OUR VALUED CORPORATE CLIENTS**

We encourage the Human Resource Department to contact our respective Raffles Medical Group Account Manager for further information and assistance.

While there is no vaccination against MERS-CoV, vaccinations against influenza and pneumococcal infection will help prevent these common infections which have similar symptoms as MERS-CoV.

We strongly advise all employees to be updated on their annual flu vaccinations, especially those travelling to or planning to travel to affected countries.

In addition to flu vaccination, clients travelling to Middle East and Umrah should be vaccinated against meningitis. People aged 65 years and above or with chronic medical conditions should also get vaccinated against pneumococcal infections.

Surgical and N95 masks are also available at our clinics, while stocks last.

**AN OUNCE OF PREVENTION IS BETTER THAN CURE.**

**For corporate enquiries, contact us at 6557 6861.**

**For individual enquiries, visit our travel clinics at:**

**Clinic**      **Raffles Medical at Raffles Hospital**  
585 North Bridge Road, Level 2  
Raffles Hospital, Singapore 188770

**Contact**      Tel: 6311 2233      Fax: 6311 2123

**Operating Hours** Daily 8.00am - 10.00pm

**Clinic**      **Raffles Medical at Terminal 3**  
Singapore Changi Airport  
65 Airport Boulevard, B2-01  
Singapore 819663

**Contact**      Tel: 6241 8818      Fax: 6241 3498

**Operating Hours** Daily 24 Hours



**Annex**

Say Goodbye to Germs Effectively with Raffles 7 Steps Hand Washing Techniques



Instructions for wearing and removal of the N95 mask are as shown below



**Protect yourselves and your loved ones by wearing a N95 mask**

Wear a N95 mask when you have flu-like symptoms or are in close contact with individuals with flu-like symptoms.

