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## Short Communication

# Overview of preparedness and response for Middle East respiratory syndrome coronavirus (MERS-CoV) in Oman



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#### SUMMARY

Several countries in the Middle East and around 22 countries worldwide have reported cases of human infection with the Middle East respiratory syndrome coronavirus (MERS-CoV). The exceptionally high fatality rate resulting from MERS-CoV infection in conjunction with the paucity of knowledge about this emerging virus has led to major public and international concern. Within the framework of the national acute respiratory illness surveillance, the Ministry of Health in the Sultanate of Oman has announced two confirmed cases of MERS-CoV to date. The aim of this report is to describe the epidemiological aspects of these two cases and to highlight the importance of public health preparedness and response. The absence of secondary cases among contacts of the reported cases can be seen as evidence of the effectiveness of infection prevention and control precautions as an important pillar of the national preparedness and response plan applied in the health care institutions in Oman.

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#### 1. Introduction

Several countries worldwide have reported cases of human infection with the Middle East respiratory syndrome coronavirus (MERS-CoV). The exceptionally high fatality rate resulting from MERS-CoV infection in conjunction with the paucity of knowledge about this emerging virus has led to major public and international concern.<sup>1</sup> The Ministry of Health in the Sultanate of Oman has announced two confirmed cases of MERS-CoV. The aim of this report is to describe the epidemiological aspects of the reported MERS-CoV cases in Oman and to highlight the public health response and the activities done to face any future resurgence of MERS-CoV in the country.

### 2. MERS-CoV in Oman

Based on the World Health Organization (WHO) interim case definition for MERS-CoV as of July 3, 2013,<sup>2</sup> the first

\* Corresponding author. E-mail address: dr.idris.oman@gmail.com (I.S. Al-Abaidani). laboratory-confirmed case of MERS-CoV in Oman was diagnosed on October 29, 2013. A 68-year-old Omani man from Dakhliyah Governorate complained of fever and cough of 2-day duration. He then developed right lower lobe pneumonia and multi-organ failure and died on November 10, 2013. He had a history of type 2 diabetes mellitus and uncontrolled hypertension, and he had previously undergone coronary artery bypass grafting. He did not have a history of travel outside the country or contact with animals.

The second case was a 59-year-old Omani man from North Batinah Governorate who presented on December 22, 2013 with a high-grade temperature and cough of 6-day duration. He later developed severe right upper lobe pneumonia and died on December 30, 2013. He was a heavy smoker, but had no known medical comorbidities. The patient had attended a camel race in Abu Dhabi, UAE, 4 weeks before the onset of his symptoms.

#### 3. MERS-CoV preparedness and response

The Ministry of Health implemented a national MERS-CoV preparedness and response plan. This plan was based on

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strengthening five pillars of action, including public health surveillance and contact management, building laboratory capacity, infection prevention and control, case management, and risk communication. Algorithms were developed describing response actions in the event of a suspected MERS-CoV case. Checklists for the preparedness of health care facilities were developed and action plans were later developed to rectify the deficiencies.

Field visits were conducted immediately after confirmation of cases by the regional and national rapid response teams from the Ministry of Health, and contact surveillance and monitoring was conducted for 14 days after the last exposure. Laboratory surveillance for MERS-CoV started by building laboratory diagnostic capacity with the availability of the primers for MERS-CoV testing, and with the training of laboratory personnel countrywide on the triple-packing and shipment of samples. Training on how to collect nasopharyngeal swabs for testing for MERS-CoV was conducted for emergency room physicians, internists, and intensivists in all district hospitals.

National infection prevention and control guidelines were developed for dealing with suspected or confirmed cases of MERS-CoV. Mask-fit testing was done for all healthcare workers who could be involved in taking care of patients with MERS-CoV. A project was initiated for triaging of patients presenting to emergency rooms or health centers with an acute respiratory illness.

In 2013, post Hajj surveillance for MERS-CoV was done using nasopharyngeal swabs for people returning from Hajj and presenting with respiratory symptoms. Three hundred and fifty samples were tested by real-time PCR and all were negative for MERS-CoV. The surveillance system for severe acute respiratory infections (SARI) was implemented in Oman in January 2008 in four regional hospitals as sentinel sites; SARI aims to determine the epidemiology of severe respiratory infections and the contribution of influenza and other etiological agents to severe respiratory infections in the country.<sup>3</sup> It also aims to detect emergent influenza strains with pandemic potential or any other respiratory infections, and to detect any unusual morbidity or mortality due to acute respiratory illness. In 2012, SARI sentinel sites were used as a platform to test 10% of cases for MERS-CoV at the central public health laboratory; 2000 samples were tested and all were negative.

In conclusion, we have described the epidemiological aspects of the two reported cases of MERS-CoV in Oman and the preparedness efforts made by the Ministry of Health. Strengthened infection control practices and having a powerful active surveillance program for acute respiratory illnesses is key to the rapid and prompt response for emerging respiratory infections.

*Conflict of interest*: None.

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