Summary report on the

International scientific meeting on Middle East respiratory syndrome coronavirus (MERS-CoV) WHO-EM/CSR/100/E

Cairo, Egypt 5–6 May 2015



Regional Office for the Eastern Mediterranea

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1. Introduction

The Middle East respiratory syndrome coronavirus (MERS-Cov), first detected in 2012 in a patient in Saudi Arabia, continues to evoke global concern and remains a serious threat to global health security. Following its identification, cases have continued to increase over the past three years and hundreds of human infections have been reported globally of which approximately 35% were fatal. The majority of cases (over 85%) reported to date globally have been from the countries of the Middle East. Since the detection of the virus in 2012, several important knowledge and information gaps continue to haunt the global scientific communities regarding the exact mode and route of transmission of the virus in humans and animals, as well as the human behaviour that results in infection. The absence of such crucial information has impeded the development of effective public health control measures and intervention strategies to minimize the risk of disease transmission.

Several scientific initiatives have recently been launched in both the animal and human health sectors in many countries and these international scientific efforts have generated important evidence on multiple aspects of the virus including its origin and reservoir. These initiatives have elicited important information and lessons surrounding the current global response to the outbreaks of MERS, especially in the areas of surveillance, infection control, screening and triaging of patients and prevention and control of nosocomial infections in health care settings.

Against this background, an international scientific meeting was organized in Cairo, Egypt, from 5 to 6 May 2015. The meeting was the fourth such meeting and aimed to share new information and research findings that have emerged since the last scientific meeting

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on MERS-CoV held in December 2013 and also to discuss key knowledge gaps. The specific objectives of the meeting were:

- to discuss and review public health measures that have proven most effective in controlling the spread of the virus to date;
- to present, share and disseminate new scientific information and study findings associated with the virus in humans and animals; and
- to identify key knowledge gaps that need to be filled in order to improve public health understanding and outbreak response in both community and hospital settings.

The meeting participants included experts from both human and animal health sectors from Jordan, Oman, Saudi Arabia and the United Arab Emirates. Also in attendance were representatives of international health agencies: United States Centers for Disease Control and Prevention, Atlanta; United States Naval Medical Research Unit 3 (NAMRU-3); Institute of Virology, University of Bonn, Erasmus Medical Centre in the Netherlands; Institute Pasteur, Mount Sinai Hospital, Toronto, Canada; China Faculty of Medicine; Chinese University of Hong Kong, the Food and Agriculture Organization of the United Nations (FAO) and World Organisation for Animal Health (OIE).

Dr Ala Alwan, WHO Regional Director for the Eastern Mediterranean, inaugurated the meeting. He noted that although global understanding of the epidemiology of the virus had greatly improved since the detection of this virus in 2012, several important knowledge gaps still remained. The meeting would be an opportunity to review the lessons learnt to date as well as the critical information and knowledge gaps that were limiting global action to prevent and contain the threat of MERS-CoV.

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The two-day meeting comprised several scientific sessions, each of which included individual presentations from the Member States, WHO and other international agencies. The individual presentations were followed by plenary discussions. During the plenary discussions, the information presented by the speakers was analysed and synthesized to identify the remaining knowledge gaps that are necessary to address both for the animal and human health sector in order to optimize the public health understanding and global response to MERS-CoV infections.

2. Summary of discussions

2.1 Review of public health measures that have proven to be most effective in controlling the spread of the virus

The current body of evidence does not show any change in the epidemiology of the virus or its transmission characteristics. Globally, a total of 23 countries reported laboratory-confirmed cases so far with no community acquired cases reported from outside the Region. Over 80% of cases reported to date occurred in countries of the Arabian peninsula. The transmission pattern seen so far in these countries represented repeated sporadic introduction of the virus mostly from dromedary camels to humans resulting in limited human-to-human transmission. Either direct or indirect contact with dromedaries continues to be the primary risk factor for human infections that are acquired in the community.

Secondary transmission continues to occur among close contacts of laboratory-confirmed symptomatic cases, but mostly in health care settings. Males with a median age of 49 years account for the majority of cases. About 35% of the reported cases are fatal, mostly those with underlying medical conditions.

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Hospital clusters of MERS-CoV cases, smaller in size with an average of 10 to 20 nosocomial transmissions per hospital outbreak, continue to be reported. Health care workers have accounted for close to 21– 22% of all reported infections from MERS-CoV to date. However, evidence has shown that secondary transmissions from MERS-CoV can be averted by applying the currently available knowledge on virus transmission and practices systematically. Some of the measures that have proven value in limiting hospital-acquired infections from MERS include the following.

- Preventing close contact through appropriate triaging and rapid isolation
- Limiting exposure through appropriate staff protection: containing the spread of the virus in the environment through improved hospital preparedness, application of essential infection prevention and control measures and improved staff preparedness

The current body of knowledge suggests that MERS-CoV infections in camels produce only minor and largely subclinical infection. Therefore, active and targeted laboratory-based surveillance needs to be established for camels with the objective of monitoring the occurrence of MERS-CoV infections in camels and its seasonality, as well as tracing forward or backwards human exposure with a view to limiting the transmission risk between camels and from camels to humans. The current body of knowledge also suggests that dromedary

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