

# **Middle East respiratory syndrome coronavirus (MERS-CoV): Summary and Risk Assessment of Current Situation in Korea and China – as of 3 June 2015**

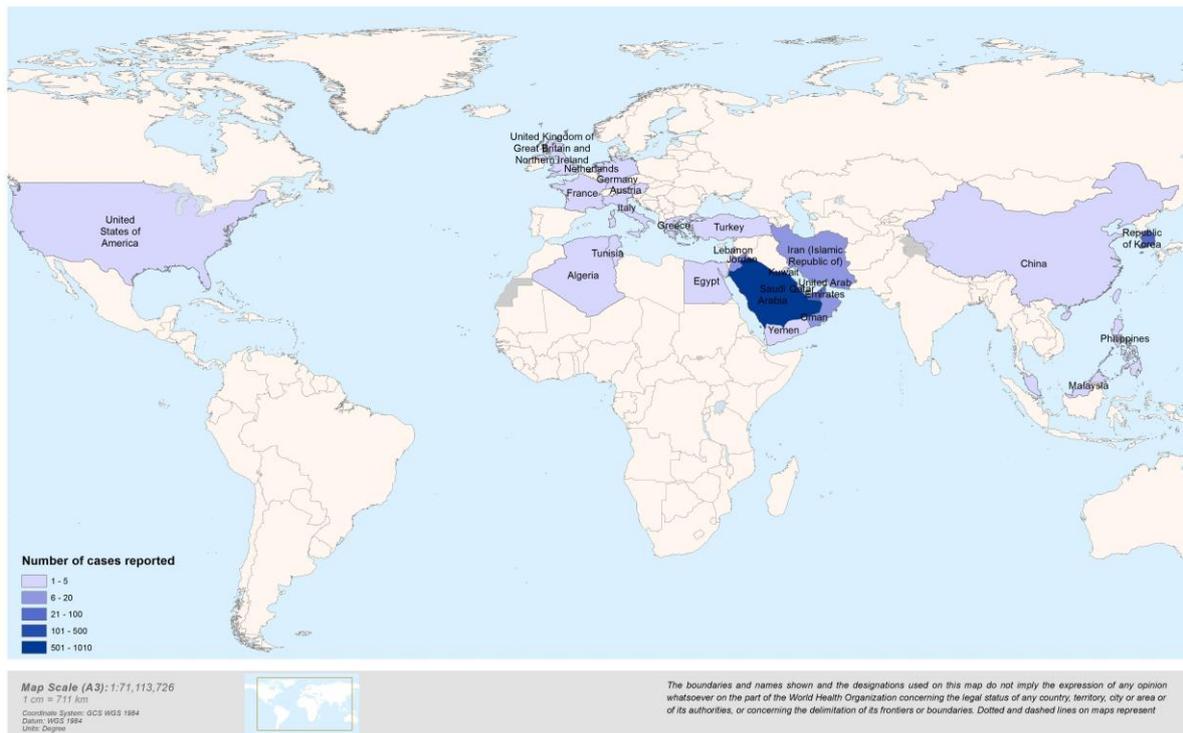
## **Background**

As of 03 June 2015, 1179 laboratory-confirmed cases of human infection with Middle East respiratory syndrome coronavirus (MERS-CoV) have been reported to WHO since 2012, including at least 442 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 (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 Korea).

On 20 May, one case was reported from Korea. This case had recently travelled to KSA, Qatar, UAE and Bahrain. The person was not ill during this period of travel. Contact tracing in Korea is ongoing and thus far has identified an additional 29 laboratory confirmed cases, two of whom died. These include health care workers caring for the patient, patients who were being cared for at the same health care facilities and family members. There is evidence of limited tertiary transmission (n=3) among the cases. WHO is in close contact with Korea, which has been actively providing information on the situation to WHO. This is the largest outbreak of MERS outside the Middle East. Since the identification of the first laboratory confirmed case, aggressive contact tracing has been in place and as of 03 June 2015, 1369 contacts are being followed and are in quarantine or isolation either at home or in state run facilities.

One of the cases whose exposure was in Korea, travelled to Hong Kong, Special Administrative Region, China by plane and then to Guangdong, China by bus. The case was symptomatic while traveling. Chinese authorities have placed this person in isolation and have identified contacts in Hong Kong and China. The contacts are in quarantine and are being followed and tested for MERS-CoV. This is the first MERS CoV case reported in China.



**Figure 1. Number of laboratory confirmed cases MERS-CoV cases reported by countries as of 03 June 2015**

WHO is continuing to work closely with Korean and Chinese health authorities and international technical organizations to control this outbreak, ensure proper treatment of ill persons, prevent further cases and gain a better understanding of transmission patterns and risk factors in this outbreak.

## Risk Assessment

The ongoing outbreak in Korea started from a single person who travelled to the Middle East (KSA, Qatar, UAE and Bahrain). WHO is in contact with health authorities in these countries to investigate the potential source of exposure(s). In Korea, the index case appears to have transmitted infection to close relatives, patients with whom he shared a room/ward and health care workers providing care. These exposures happened before MERS-CoV was suspected or diagnosed. Nosocomial and home-based transmission have been previously observed (e.g., in KSA, UAE, France, United Kingdom). This is the largest nosocomial outbreak that has occurred outside of the Middle East. This is also the first time MERS CoV has been exported to Korea or China. The individual who travelled to China was symptomatic.

In this outbreak, all known transmission of this virus have occurred before adequate infection prevention and control procedures were applied and reflects transmission patterns seen in previous nosocomial outbreaks in the Middle East. Monitoring of the situation and contacts is ongoing and

more information is being gathered to better assess the risks associated with this particular event. Sequencing of the viruses obtained from patients in Korea and China is ongoing.

MERS-CoV is considered a zoonotic virus that can lead to secondary infections among people. Most infections have occurred in the Middle East and among them, many community-acquired infections are thought to be associated with direct or indirect contact with infected dromedary camels or camel-related products. Infection acquired by exposure to camels represent a minority of all cases. Once a person is infected by MERS-CoV and is symptomatic, the person can transmit infection to others, but the specific modes of transmission, risk factors and conditions facilitating transmission are not well established. In no location has community wide transmission been observed. While human-to-human transmission has been observed in households in affected countries, most human cases reported to date have resulted from human-to-human transmission in health care settings. Suboptimal infection prevention and control in health care settings have sometimes resulted in large numbers of secondary cases, as was seen in KSA in April-May of 2014.

WHO expects that additional cases of MERS-CoV infection may be reported from Korea among the persons who were in contact with initial cases before measures were implemented by the public health authorities. Consistent application of adequate infection and prevention and public health measures has stopped transmission in previous clusters.

## Recommendations

Enhancing infection prevention and control awareness and implementation measures is critical to prevent the possible spread of MERS-CoV in healthcare facilities. It is not always possible to identify patients with MERS-CoV early and for this reason, all health care facilities should have standard infection prevention and control practices in place for infectious diseases in general. If MERS-CoV is suspected, policies and procedure for rapid screening and assessment of potential MERS-cases should be in place to ensure rapid care of the patient and to minimize the number of contacts among other patients, visitors and health workers. Droplet precautions, including eye protection, should be added to the standard precautions when providing care to any patient with symptoms of acute respiratory infection.

Other measures involve linen management, cleaning and disinfection and waste management. Airborne precautions are not generally recommended except when performing aerosol-generating procedures.

Health workers and facilities in all countries should maintain a high level of vigilance for the possibility of MERS-CoV especially among travellers or migrant workers returning from the Middle East. Countries should ensure adequate surveillance for MERS-CoV according to WHO guidelines, along with infection prevention and control procedures in healthcare facilities.

WHO continues to request that Member States rapidly report all confirmed and probable cases of MERS-CoV along with information about exposures, testing, and clinical course. A better understanding of how health care workers are infected in health care settings is urgently needed.

WHO does not advise special screening procedures at points of entry, or travel or trade restrictions with regard to this event.

WHO guidelines and tools on investigations can be found here:

- [WHO guidelines for investigation of cases of human infection with Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\)](#)  
[pdf, 359kb](#)
- [Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\) Initial Interview Questionnaire of Cases](#)  
[pdf, 114kb](#)
- [Case-control study to assess potential risk factors related to human illness caused by Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\)](#)  
[pdf, 257kb](#)
- [Seroepidemiological Investigation of Contacts of Middle East Respiratory Syndrome Coronavirus \(MERS-CoV\) Patients](#)