

## Prevention of a growing pandemic, Middle Eastern Respiratory Syndrome (MERS): a literature review



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**Background:** Middle Eastern Respiratory Syndrome (MERS) is a viral respiratory syndrome caused by MERS-CoV, a coronavirus first identified in March 2012 in the Kingdom of Saudi Arabia (KSA).<sup>1</sup> To date, 1374 laboratory-confirmed cases of infection with MERS-CoV have been identified in 26 countries, with a case fatality rate of 36%.<sup>2</sup> Current studies reveal that the rapid spread of the virus is attributable to its transmission mechanisms, through dromedary camels and human-human contact in mass gatherings and nosocomial settings.<sup>3,4</sup> Given that KSA serves for 80% of the MERS cases, this review examines the underlying factors in KSA that has exacerbated the virus spread. Moreover, the paper assesses the current MERS prevention and control strategies taken by the Ministry of Health (MOH) in KSA and international organizations, such as the World Health Organization (WHO).

**Methodology:** This study was conducted as a targeted literature review of articles from *Global Health*, *PubMed*, *Medline*, and *Web of Science* databases, using the following key words: "Middle East\* Respiratory Syndrome", "MERS\*-CoV", "Saudi Arabia", "dromedary camels", "outbreak", "risk factors", "prevention and control", and "Hajj". Exclusion criteria include articles before March 2012.

**Findings:** Studies revealed that the rapid spread of MERS-CoV in KSA has been a result of inadequate hospital practices<sup>4</sup>, traditional exercises involving dromedary camels (a potential MERS-CoV reservoir),<sup>3</sup> and uncontrolled religious mass gatherings, such as *Hajj* and *Ummrah*.<sup>5</sup> As a result, the MOH in Saudi Arabia and public health officials have focused the prevention and management strategies on these MERS-related risk factors. Such strategies include avoidance of contact with camel or their products, general hygiene practices, contact precautions in a healthcare setting, advancements in MERS surveillance, and advise to travelers attending *Hajj*.<sup>6,7</sup>

Reviewing the current outbreaks and reported cases demonstrates that there have been improvements in controlling the spread of the virus, particularly in KSA. However, small outbreaks remain in hospital settings in KSA and a major recent outbreak has been documented in the Republic of Korea.<sup>2</sup>

**Conclusion and Recommendations:** There is a need for both high- and low-risk nations to abide by international recommendations regarding MERS prevention (a lesson learned from the Republic of Korea). Moreover, there is a need for ongoing research to fill the gap in the background literature regarding the transmission route and source of the virus before a sustainable prevention strategy could be designed.

### Global Health Relevancy

- Expanding to 26 infected nations over a 3 year-period, there is a need to review the current prevention and strategies of MERS outlined by WHO & MOH in KSA.
- Enhancing the current knowledge sharing and translation mechanisms, by raising MERS awareness in high and low-risk nations, could control a potential pandemic.