

Middle East Respiratory Syndrome Coronavirus and the Upcoming Hajj

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The Middle East respiratory syndrome coronavirus (MERS-CoV) is a novel virus which was first isolated in April 2012 from a patient with severe acute respiratory infection in Jordan. As of September 7, 2013, there have been 114 cases of laboratory-confirmed infection with MERS-CoV in the Middle East (predominantly Saudi Arabia) and Europe, including 54 deaths.¹ All reported cases outside of the Middle East have occurred in recent travelers to the Middle East or their close contacts, and the majority of fatalities have occurred in individuals with underlying medical conditions.

Much remains unknown about the epidemiology of MERS-CoV, including the exact mode of transmission, number of asymptomatic or mildly symptomatic cases, and presence of an animal reservoir. Transmission seems to occur primarily among household contacts and has also been reported in health care facilities, including an outbreak with 23 confirmed and 11 probable cases in four health care facilities in the eastern province of Saudi Arabia during April and May 2013.² The incubation period of MERS-CoV is thought to be up to 14 days, which can facilitate spread of the virus when infected individuals travel prior to becoming symptomatic.¹ At present, there is no available vaccine for MERS-CoV, and treatment consists of supportive measures only. However, due to lack of sus-

tained transmission in communities, the World Health Organization (WHO) does not consider MERS-CoV to be a public health emergency at this time.³

The Hajj pilgrimage to Mecca, Saudi Arabia is one of the largest mass gatherings in the world, drawing more than three million Muslims from around the globe each year. Transmission of communicable diseases during mass gatherings such as the Hajj has become an increasing concern, as such gatherings bring individuals from all over the world into close contact for days at a time. In fact, “mass gathering medicine” has recently emerged as a medical specialty focused on preventing and treating illness and injury during such events. In order to prevent transmission of communicable diseases during the Hajj, the Saudi Arabian Ministry of Health currently requires certain vaccines (for yellow fever, meningococcal meningitis, and poliomyelitis) depending on a traveler's country of origin. Influenza vaccination, strict attention to personal hygiene (especially handwashing and cough etiquette), and avoidance of unnecessary contact with animals are also strongly recommended.⁴

Despite reassurance by the WHO that the risk of infection with MERS-CoV among those traveling to Saudi Arabia this October for the Hajj is very low, there remains significant concern among the international community about the po-

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tential for an outbreak, especially given the ongoing development of new cases in Saudi Arabia. There were no reported cases of MERS-CoV during the 2012 Hajj, but a study of pilgrims departing from Marseille, France to Mecca demonstrated a high rate of acquisition of other respiratory viruses.⁵ Because of the potential risk for MERS-CoV, the WHO is recommending that individuals at risk for severe illness postpone their plans for attending the Hajj this year.³ Those groups who have been advised not to attend this year's Hajj include adults over 65 years of age, children under 12 years of age, pregnant women, individuals with chronic diseases (heart disease, kidney disease, respiratory disease, diabetes, or cancer), and immunocompromised individuals. Travelers who develop respiratory illness during the Hajj have been advised to minimize contact with others and seek immediate medical attention.

Given the relatively prolonged incubation period of MERS-CoV, it is likely that pilgrims who become ill will do so after returning home. Therefore, it will be critical for the international health community to recognize the potential for imported cases among travelers returning from the Hajj. There should be a high index of suspicion for MERS-CoV infection when returning pilgrims present with severe febrile respiratory illness (temperature greater than 38 °C, along with pneumonia or acute respiratory distress syndrome) within 14 days of departing from Mecca, or when their close contacts present with severe febrile respiratory illness. Presence of an alternate diagnosis, such as another confirmed viral or bacterial respiratory infection, does not preclude infection with MERS-CoV, so health care providers should remain suspicious for MERS-CoV in any patient presenting with compatible risk factors and clinical presentation.³

All cases of suspected infection with

MERS-CoV should be reported immediately to health departments or ministries of health in order to help identify clusters of disease that may be occurring, and to facilitate laboratory testing to confirm the diagnosis. Testing for MERS-CoV with polymerase chain reaction is available only through health departments and ministries of health at this time. Whenever possible, due to higher yield, lower respiratory samples obtained via bronchoalveolar lavage are preferred over upper respiratory samples obtained via nasopharyngeal swab or aspiration.³ Specimens should be placed in viral transport media.

In addition to notifying health authorities and arranging for appropriate laboratory testing, it is critical that health care providers implement appropriate infection control measures in order to prevent transmission of MERS-CoV to other patients and health care personnel. Based on previous experience with the severe acute respiratory syndrome (SARS) coronavirus in 2003, the Centers for Disease Control and Prevention in the United States recommends that all patients with suspected MERS-CoV infection be immediately placed in airborne isolation in a negative pressure room if at all possible.¹ At the very least, patients with suspected MERS-CoV infection should be placed in a private room and wear a facemask. Ideally, health care personnel caring for patients with suspected or confirmed MERS-CoV infection should wear appropriate personal protective equipment, including gloves, a gown, eye protection (goggles or face shield), and a facemask, preferably a respirator if available. Transport of patients with suspected MERS-CoV infection throughout the health care facility should be minimized, as should the number of health care personnel coming in contact with the patient.

In summary, the risk of MERS-CoV

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infection among pilgrims attending this year's Hajj is felt to be very low, and only those individuals with risk factors for severe illness have been advised to alter their travel plans. Health care providers caring for returning pilgrims with febrile respiratory illness should be suspicious for MERS-CoV and should take appropriate steps to make a diagnosis and prevent transmission to others.

Conflicts of Interest: None declared.

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