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COVID-19 in the Eastern Mediterranean Region and Saudi Arabia: prevention and therapeutic strategies

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The emergence of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the causative agent of coronavirus disease 2019 (COVID-19), in late 2019 in Wuhan, Hubei Province, Central China, had caused the new century's pandemic. As of 22 March 2020, the World Health Organization (WHO) reported a total of 292 142 confirmed cases with 12 748 deaths [1]. The epicentre of the disease has now shifted from China, where the number of new cases has declined sharply in the last few weeks, to Europe and the Eastern Mediterranean region (EMR). In the WHO EMR, 19 of the 22 countries/territories have been affected, with a total of 18 060 reported cases and 1010 deaths as of mid-March 2020, mostly in the Islamic Republic of Iran. Despite the many challenges faced by some countries in the EMR, including complex emergencies, compounded by fragile health systems, weak disease surveillance, poor response capacity and a suboptimal level of public health preparedness, the Ministries of Health of 16 of the 22 countries/territories have developed a national action plan against COVID-19 with the support of the WHO Regional Office for the EMR and other United Nations agencies. Further support, including financial, manpower and logistical guidance, has been provided by the WHO Regional Office to countries in need. An additional unique challenge for the EMR is the major religious mass gathering events that take place, which pose unique risks to public health. These religious gatherings take place in the Islamic Republic of Iran, Iraq and the Kingdom of Saudi Arabia (KSA). As with any infectious disease outbreak, early detection of infection is considered the highest priority in order to isolate and apply preventative measures. In the EMR, the overall capacity to rapidly detect and respond to the potential importation or local transmission of SARS-CoV-2 is inadequate. In addition, laboratory capacities are limited, with 20 of the 22 countries in the EMR having a functioning reference laboratory with the ability to detect and confirm Middle East respiratory syndrome coronavirus (MERS-CoV) and other high-threat pathogens. When it comes to the detection of a newly emerging pathogen, a lot of training and guidance with

the provision of diagnostic kits and laboratory supplies will be required. Countless challenges are faced by many countries when it comes to the purchase of new equipment and diagnostic kits as well as training staff on biosafety and biosecurity. Many EMR countries took steps to repatriate their citizens from China very early on and isolated them for 14 days on arrival. To curtail the COVID-19 pandemic, many countries around the world, including EMR countries, have adopted varying strategies for such prevention. Some countries were more aggressive than others in taking bold proactive steps to prevent the entry and spread of COVID-19 in their countries. The KSA has taken such major steps, as outlined here [2].

One of the pillars of Islam is the annual pilgrimage. This annual mass gathering taking place in KSA is one of the largest recurring mass gatherings in the world and thus is widely studied [3,4]. The number of pilgrims has increased from 58 584 in 1920 to 3 161 573 in 2012 [5]. As such, this annual mass gathering brings the possibility of the propagation of respiratory infections [6]. The KSA has taken unprecedented measures to prevent the spread of SARS-CoV-2 and these measures were taken ahead of many other countries around the globe. On 27 February 2020, for the first time in 80 years and in the history of Muslim pilgrimage to the holy sites, KSA placed restrictions on inbound Umrah pilgrimage [7,8]. The first case of COVID-19 was reported by the Saudi Ministry of Health on 2 March 2020 in a citizen returning from Iran in the Qatif region, Eastern KSA, and 51 contacts tested negative.

Multiple steps were taken to prevent the spread of SARS-CoV-2, with the cancellation on 5 March 2020 of many congregational events in KSA including the Riyadh International Book Fair and the Saudi Arabian International Horse Festival. In addition, the KSA suspended its eVisa programme, placed a ban on inbound travel of persons from COVID-19-affected countries, and placed restrictions on travel from and to the neighbouring Gulf countries and, on 7 March 2020, KSA limited international flights to the three major airports within the Kingdom. On 7 March 2020, KSA required a SARS-CoV-2 negative-certificate for any arriving travellers. Since the initial cases were reported from the Qatif region, this area was put in lockdown on 8 March 2020. On 8 March 2020, the Saudi Ministry of Education announced the closure of schools and universities. There was prohibition of gathering and wedding cere-

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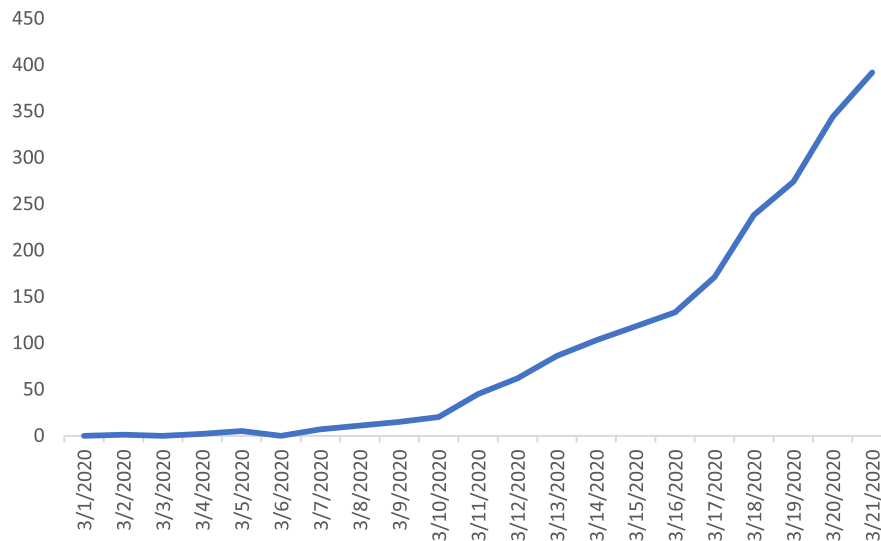


Fig. 1. Cumulative daily number of COVID-19 cases in the Kingdom of Saudi Arabia.

monies on 13 March 2020. All international flights were suspended effective 15 March 2020 and all arriving travellers were placed in quarantine for 2 weeks. However, on 21 March 2020 there were further bans on local flights, train and bus transportation. These social precautions and actions are intended to curtail and slow the development of COVID-19 cases in the KSA. The cumulative number of COVID-19 cases is shown in Fig. 1.

There is currently no standard therapy for COVID-19. Possible therapeutic options include lopinavir/ritonavir and hydroxychloroquine [9,10]. In a randomised study of patients with laboratory-confirmed SARS-CoV-2 infection, 99 received lopinavir/ritonavir and 100 received standard care [9]. There was no difference in the 28-day mortality rate (19.2% for lopinavir/ritonavir and 25.0% for standard care) [9]. In a small study, hydroxychloroquine significantly decreased the viral load in COVID-19 patients and the addition of azithromycin further enhanced the reduction in viral load [10]. In KSA, currently proposed therapy for COVID-19 patients includes hydroxychloroquine for all cases with the addition of lopinavir/ritonavir for severe cases and those requiring intensive care unit admission. This protocol is being adopted by many healthcare institutes throughout the KSA. These protocols will require further clinical testing in randomized clinical trials to confirm improvements in patient clinical outcomes.

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