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Review Article

Coronavirus disease of 2019 (COVID-19) in the Gulf Cooperation Council (GCC) countries: Current status and management practices

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ABSTRACT

Coronavirus disease 2019 (COVID-19), caused by the novel severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is currently a global threat to human population. The numbers of cases and deaths due to COVID-19 are escalating daily, putting health care systems worldwide under tremendous pressure. Policymakers in the affected countries have adopted varying strategies to deal with this crisis. As a result, the current COVID-19 status in terms of number of cases and deaths hugely varies between countries. The Gulf Cooperation Council (GCC) countries have managed to limit the massive spread of the infection among their populations by implementing proactive plans and timely decisions in response to COVID-19 outbreak; measures taken included suspension of flights, closure of educational institutes, curfew and lockdown of major cities, and provision of free-of-charge healthcare to patients. This review summarizes the COVID-19 status as of 18 May 2020 and highlights prevention and control measures applied in the GCC countries.

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Introduction

A case of respiratory infection caused by a novel coronavirus was reported in Wuhan, China in late 2019 [1,2]. This case was considered to be due to zoonotic transmission of the virus. Since then, the transmission of the infection among humans has accelerated leading to hundreds, then to thousands of cases across China before spreading worldwide [1]. The novel coronavirus is now known

as severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), and the disease has been named the coronavirus disease of 2019 (COVID-19) [3]. On the 11th of March 2020, the World Health Organization (WHO) declared COVID-19 a pandemic, with 118,320 confirmed cases reported in 114 countries [4]. The COVID-19 pandemic has since continued to escalate, with 4,628,903 cases and 312,009 deaths reported in 216 countries, areas, or territories as of 18 May 2020 [5].

Policymakers and medical communities around the world, and even in developed countries, have struggled to control the rapid and massive spread of the infection. By cumulative number of cases, USA, Russia, Spain, Italy, Turkey and France are at the top of the list of COVID-19- hit countries [5]. The infection rates in these countries are between 1788 and 5950 cases per million population (as

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of 18 May 2020) [5]. In the absence of specific antiviral therapy and effective vaccination, COVID-19 will continue to spread widely which will likely (1) lead to additional loss of lives and (2) heighten the socio-economic burden of the infection.

The status of COVID-19 in the Gulf Cooperation Council (GCC) countries (Saudi Arabia, Oman, Kuwait, Iraq, United Arab Emirates (UAE), Qatar, and Bahrain) as of 18 May 2020 widely varied. Many of these countries have been proactive in response to COVID-19 launching tremendous efforts to control the infection prior to detecting the first case. Here, we review the status of COVID-19 in GCC countries, summarize the control measures taken by each country, and highlight some future challenges.

COVID-19 status in GCC countries

The first four cases of COVID-19 in the GCC countries was reported by the UAE Ministry of Health and Prevention on 29 January 2020 [5,6]. The patients were family members who had recently arrived from Wuhan, China [6]. On late February 2020, Bahrain, Kuwait, Oman, Iraq, and Qatar reported their first COVID-19 cases [7,8]. These cases were either Iranians or citizens of the GCC countries who had recently visited Iran. Many citizens and residents of the GCC countries visit Iran frequently for religious and personal purposes. Iran reported the country's first case of COVID-19 on 19 February 2020 [5]. Since then, Iran has become among the countries most severely affected by COVID-19 with over 122,000 cases and more than 7000 deaths (as of 18 May 2020) [5]. As soon as the GCC countries reported confirmed cases, Saudi Arabia initiated control measure and management practices (e.g., suspension of Umrah, tourism, and some international flights). Despite these restrictions, Saudi Arabia announced the country's first case of COVID-19 on 2 March 2020 [9]. As with the other GCC countries, this case was linked to a recent visit to Iran [9]. Subsequently, an increasing number of cases has been reported in the GCC countries (Fig. 1).

Owing to the tremendous efforts to control the spread of the infection, the total number of active cases as of 18 May 2020 in the six GCC countries was 92,171 with 841 (0.6%) deaths and 54,300 (36.9%) recovered patients [5]. This represents 934.3 active cases, 8.5 deaths, and 550.4 recoveries per million population [5]. In regard to the cumulative numbers, Saudi Arabia has reported most of the cases followed by Qatar, UAE, Kuwait, Bahrain, Oman, and Iraq (Table 1).

However, it is important to note the huge variation in the populations of these countries; for instances, the population of Iraq is over 40.1 million while that of Bahrain is about 1.7 million [5]. To put this in context, the infection rate is in fact the lowest in Iraq, Oman, and Saudi Arabia (<2000 cases per million population) and the highest in Qatar (>10,000 cases per million population). The rates of deaths remained fewer than 10 per million population in the GCC countries, apart from Kuwait and UAE (>20 deaths per million population (Table 1)).

The percentage of death due to COVID-19 among infected individuals in Iraq is 3.6%. In the other five countries, the percentage of death among infected individuals remained <1%. More than 50% of cases are still active in the GCC countries with the exception of Iraq, which has reported the highest recovery (65%) so far (Table 1).

It is important to note that reporting of cases is influenced by the testing capabilities and policies in addition to the preparedness of each country. The number of tests and rate of testing per million population for each country are shown in Table 1. Hence, there remain the possibility of under-estimation of the total number of cases in the GCC countries as well as in other countries worldwide [10]. However, the overall status of COVID-19 in GCC countries in comparison to many countries around the world are relatively sta-

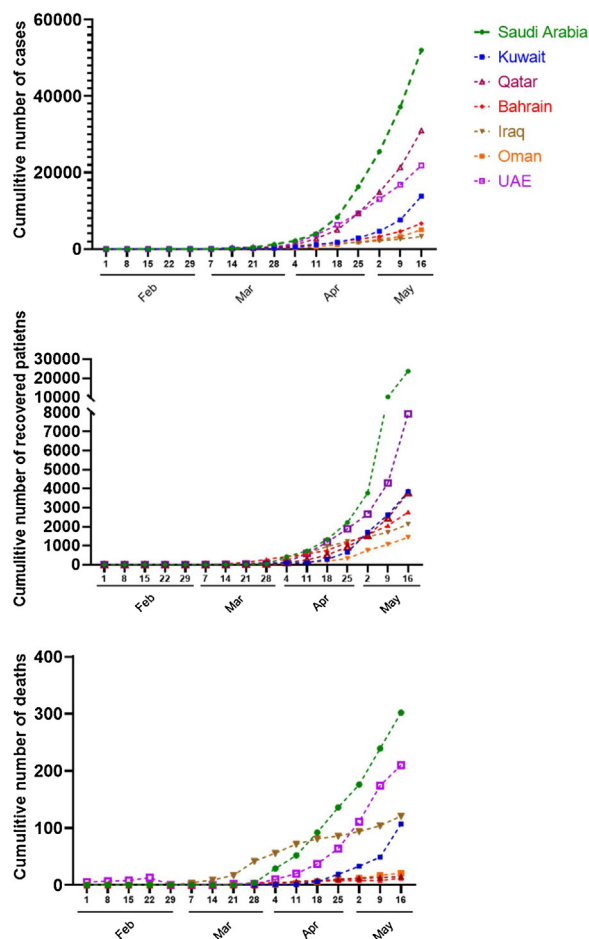


Fig. 1. The cumulative numbers of cases, recovered patients, and deaths in the GCC countries. The actual cumulative numbers of cases (top), recovered patients (middle), and deaths (bottom) are shown for Saudi Arabia (green), Kuwait (blue), Qatar (maroon), Bahrain (red), Iraq (brown), Oman (orange), and UAE (purple). (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article).

ble so far. It indicates that control measures and management plans implemented by the GCC countries have successfully limited the spread of infection, despite risk factors for COVID-19 such as smoking, diabetes and cardiovascular disease being common in these countries [11–13]. Although it is far too early to draw any firm conclusion at this stage, other factors that might have contributed to the reduced number of COVID-19 cases and deaths in the GCC countries are the high rates of Bacille Calmette Guerin (BCG) vaccination (given as part of the routine vaccination schedule in GCC countries) in addition to the high temperatures in these areas. These two factors were recently found to be inversely correlated with COVID-19 infectivity, morbidity, and mortality [14,15].

Response of GCC countries to COVID-19

As soon as cases of COVID-19 were confirmed in the GCC countries, these countries began to initiate stringent control measures to limit the spread of infection. Indeed, the UAE announced considering all suspected and confirmed cases of COVID-19 as emergencies on 31 January 2020, only two days after the first confirmed cases were reported in the country. Moreover, policymakers decided to provide medical care to all COVID-19 patients free of charge. This was followed by the closure of school and universities, sterilization campaigns, suspension of flights from and to the country, and

Table 1
The status of COVID-19 in the GCC countries as of 18 May 2020.

GCC country	Cumulative number				Percentage			Rate per million population			Testing	
	Active	Recovered	Deaths	Total	Active	Recovered	Deaths	Active	Deaths	Total cases	Total number	Rate per million population
Saudi Arabia	28,277	28,748	320	57,345	49.3	50.1	0.6	813.8	9.2	1647.8	601,954	17,324
Kuwait	11,234	4339	118	15,691	71.6	27.7	0.8	2635.3	27.7	3680.9	248,314	58,251
Qatar	29,055	4899	15	33,969	85.5	14.4	0.04	10,105.9	5.2	11,815.1	161,695	56,241
Bahrain	4241	2931	12	7184	59.0	40.8	0.2	2504	7.1	4241.7	243,031	143,494
Iraq	1117	2310	127	3554	31.4	65.0	3.6	27.8	3.2	88.6	149,701	3732
Oman	3858	1496	25	5379	71.7	27.8	0.5	758	4.9	1056.8	61,000	11,984
UAE	14,389	9577	224	24,190	59.5	39.6	0.9	1457	22.7	2449.4	1,600,923	162,103
Total	92,171	54,300	841	147,312	62.6	36.9	0.6	934.3	8.5	1493.2	3,066,618	453,129

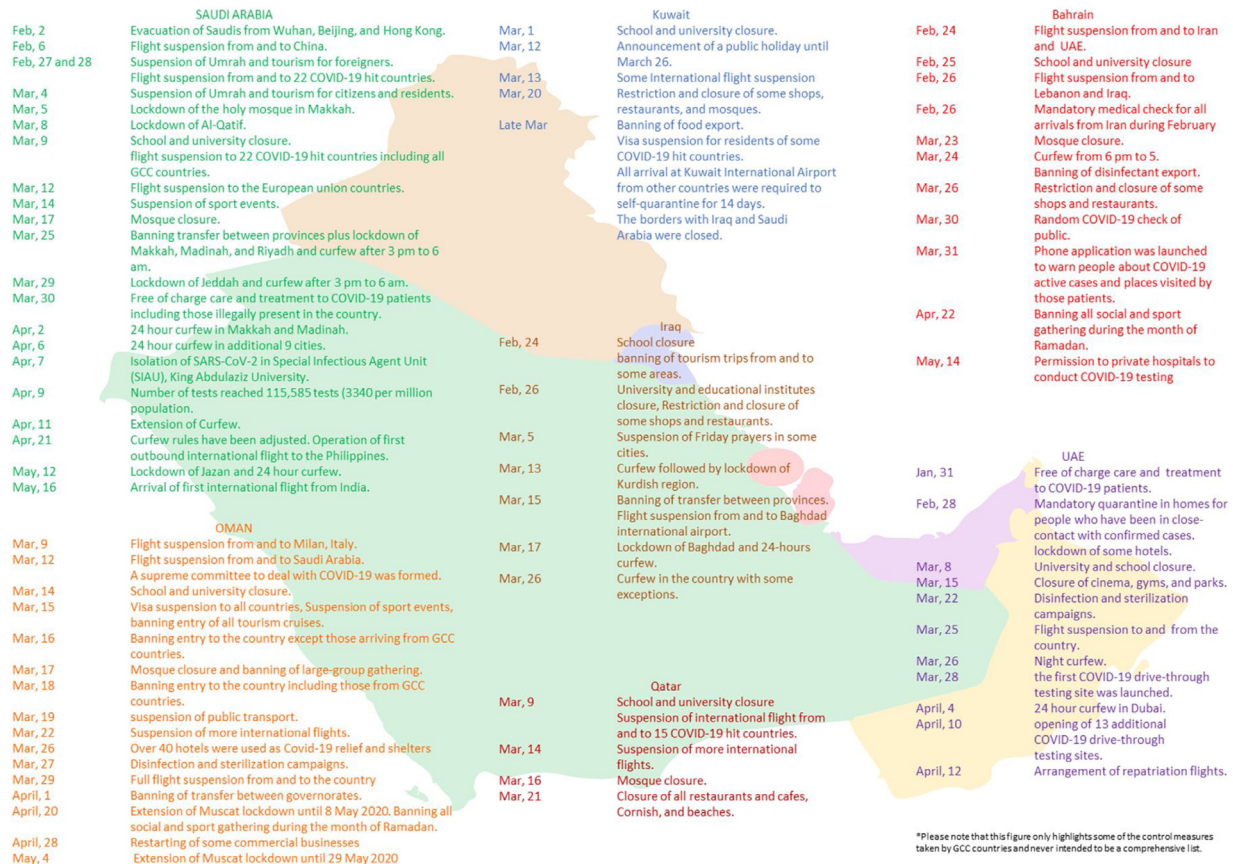


Fig. 2. Responses of the Gulf Cooperation Council countries to the COVID-19 outbreak. Key control measures and management practices undertaken in Saudi Arabia (green), Kuwait (blue), Oman (orange), Iraq (Brown), Bahrain (red), Qatar (maroon), and UAE (purple) are shown. (For interpretation of the references to colour in this figure legend, the reader is referred to the web version of this article).

curfew. Notably, the UAE has launched more than 10 coronavirus drive-through testing sites [16].

One of the first responses of the GCC countries to COVID-19 was taken by Saudi Arabia who decided to evacuate all citizens from Wuhan, Beijing, and Hong Kong on 2 February 2020. A few days later, the suspension of flights to and from China was announced. This was followed by the suspension of flights to more than 20 COVID-19-hit countries [17]. By the end of February, Saudi Arabia had also suspended Umrah (the ‘minor pilgrimage to Mecca’ required at least once in the lifetime of Muslims that can be undertaken at anytime of the year) for people from outside the country [18]. All of these were proactive control measures taken by Saudi Arabia even prior to detecting the first case in the country. Complete lockdown of the Holy Mosques was enforced on 5 March 2020, only three days following confirmation of the first COVID-19 case in the country. This was a huge step by the government given the number of daily visitors to the Holy Mosques which is

estimated to be more than 278,000 visitors per hour [19]. During March 2020, policymakers took a series of further decisions including mosque and educational institute closures, activation of distance learning, restriction on restaurants and shopping centers, suspension of flights to many countries including other GCC and European Union countries, this was followed by suspension of all international flights, and lockdown of major cities (Makkah, Madinah, Riyadh, and Jeddah) with curfew from 3 pm to 6 am [17]. Despite all of these control measures, the number of cases continued to escalate (Fig. 1). In response, a 24-h curfew was imposed in 11 cities by the first week of April. It should also be noted that the Ministry of Health, and many universities and research institutes in Saudi Arabia have announced the availability of grant funds for COVID-19 research during the last couple of months. One of the main achievements of these studies was the isolation of SARS-CoV-2 for the first time in Saudi Arabia by the Special Infectious Agent Unit (SIAU) at King Abdulaziz University on 7 April 2020.

Similar control measures were taken by other GCC countries at different dates. These measures include lockdown of major cities, full suspension of flights, university and school closure, banning of social gathering and sport events, provision of free-of-charge healthcare to patients, and launching of COVID-19 active screening (Fig. 2). By implementing these proactive and reactive responses in relation to the number of COVID-19 cases and deaths, it may be concluded that health and governmental officials of the GCC countries have generally succeeded in bringing the outbreak under control in their countries. However, without cooperation from the public, it would have not been possible to contain the infection. Multiple awareness campaigns in different languages are in progress through various forms of media to increase public awareness about COVID-19 infection and provide-up-to-date information on new cases, deaths, and recoveries. Although several incidences of careless acts and violation of curfew laws have been reported, the governments' efforts to raise awareness continue. The challenges remain as we are in the holy month of Ramadan and approaching Eid (from 23 April to 23 May 2020): two special occasions for Muslims who represent the vast majority of population in the GCC countries. It is very common for people to gather frequently in large groups in homes and mosques during Ramadan and Eid. The Ministry of Islamic Affairs, Dawah and Guidance in Saudi Arabia has announced that mosques are to remain closed during Ramadan, which is the case in other GCC countries.

Hajj (the Islamic pilgrimage) is another huge challenge for Saudi Arabia. Millions of Muslims (who often wait decades to fulfill this act of worship) perform the annual Hajj pilgrimage, which is to be held between 28 July and 2 August 2020. Hajj has been previously associated with the transmission of respiratory infections. With regards to COVID-19, serious precaution is particularly important as SARS-CoV-2 infected but asymptomatic individuals may be sources of infection [20]. Close monitoring and comprehensive evaluation of COVID-19 status over the next few months is key for making the appropriate decisions with regards to cancellation of Hajj this year [21].

Conclusions

Overall, the COVID-19 status in the GCC countries seems to be under control as of 18 May 2020. These countries implemented a wide range of control measures and management practices even prior to detecting local infections. So far, these continuing sustained efforts and unprecedented decisions have been key to limiting the spread of infection. Continuous monitoring and reporting of cases and deaths over the next several months is of a critical importance for the comprehensive evaluation of COVID-19 status and implementation of appropriate precautions in the GCC countries.

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Competing interests

None declared

Ethical approval

Not required.

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