

SCIENTIFIC RESEARCH MONITORING ON COVID-19

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SCIENTIFIC RESEARCH MONITORING ON COVID-19

(ISSUE 169)

Abu Dhabi Public Health Center (ADPHC) is gathering the latest scientific research updates and trends on coronavirus disease (COVID-19) in a daily report. The report provides summaries on breakthrough or updated research on COVID-19 to allow health care professionals and public health professionals get easy and fast access to information.

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Research
Update



WHO
Report



Statistics



Articles
Summary

Note : All articles presented in this report represent the authors' views and not necessarily represents Abu Dhabi Public Health Center views or directions. Due the nature of daily posting , some minor language errors are expected.

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RESEARCH UPDATES

The views and opinions expressed in this report are those of the authors and do not reflect the official policy or position of the Abu Dhabi Public Health Center (ADPHC).

Public Health Response

Assessing national performance in response to COVID-19

Transmission

Airborne Transmission of SARS-CoV-2 Theoretical Considerations and Available Evidence

Vaccine & immunology

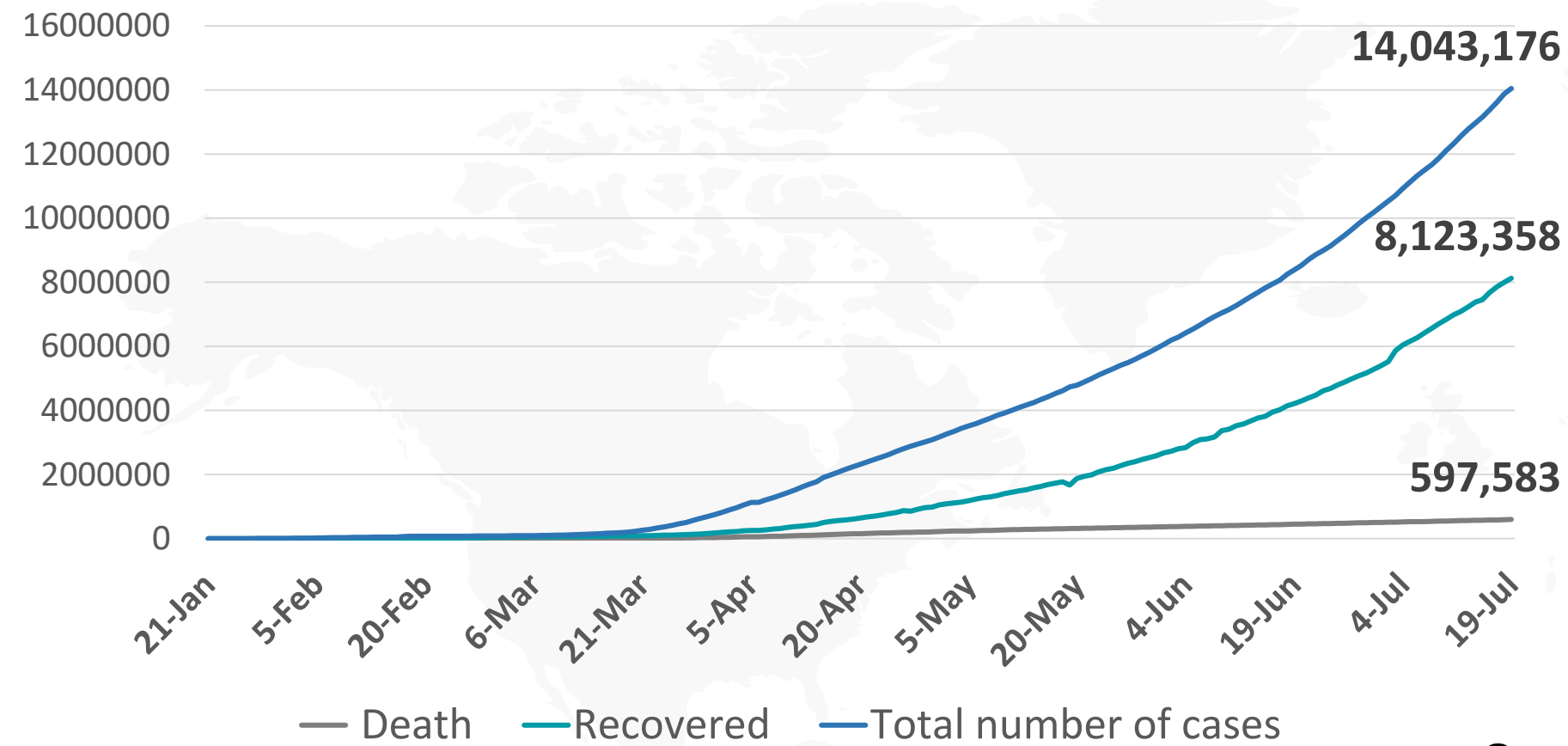
SARS-CoV-2-specific T cell immunity in cases of COVID-19 and SARS, and uninfected controls



- COVID-19 affects us all, but most especially vulnerable populations such as refugees and migrants. To assess the public health and social impact of the COVID-19 pandemic on refugees and migrants, WHO and partners are conducting a global study called ‘ApartTogether’.
- To combat misconceptions about COVID-19 in Nigeria, WHO and the Nigerian government are scaling up strategies to demystify COVID-19 by working with traditional leaders. The aim is to empower traditional leaders, who command great respect, to participate in on-going sensitization efforts and to sustain the strategy by letting community members lead the campaign.

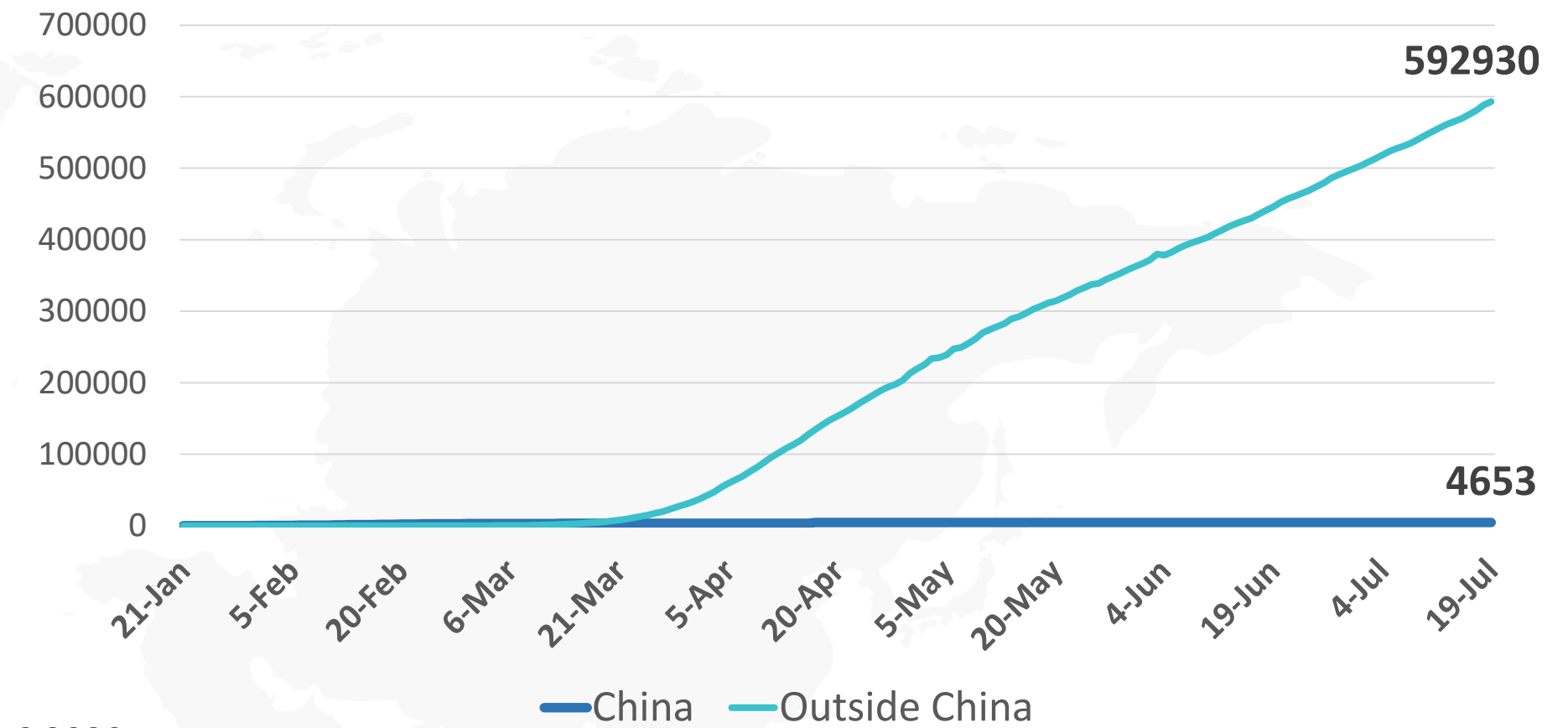


Figure 1: Total number of infected, recovered, and death cases



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Figure 3: Total number of death due to COVID-19 (china and the result of the world)



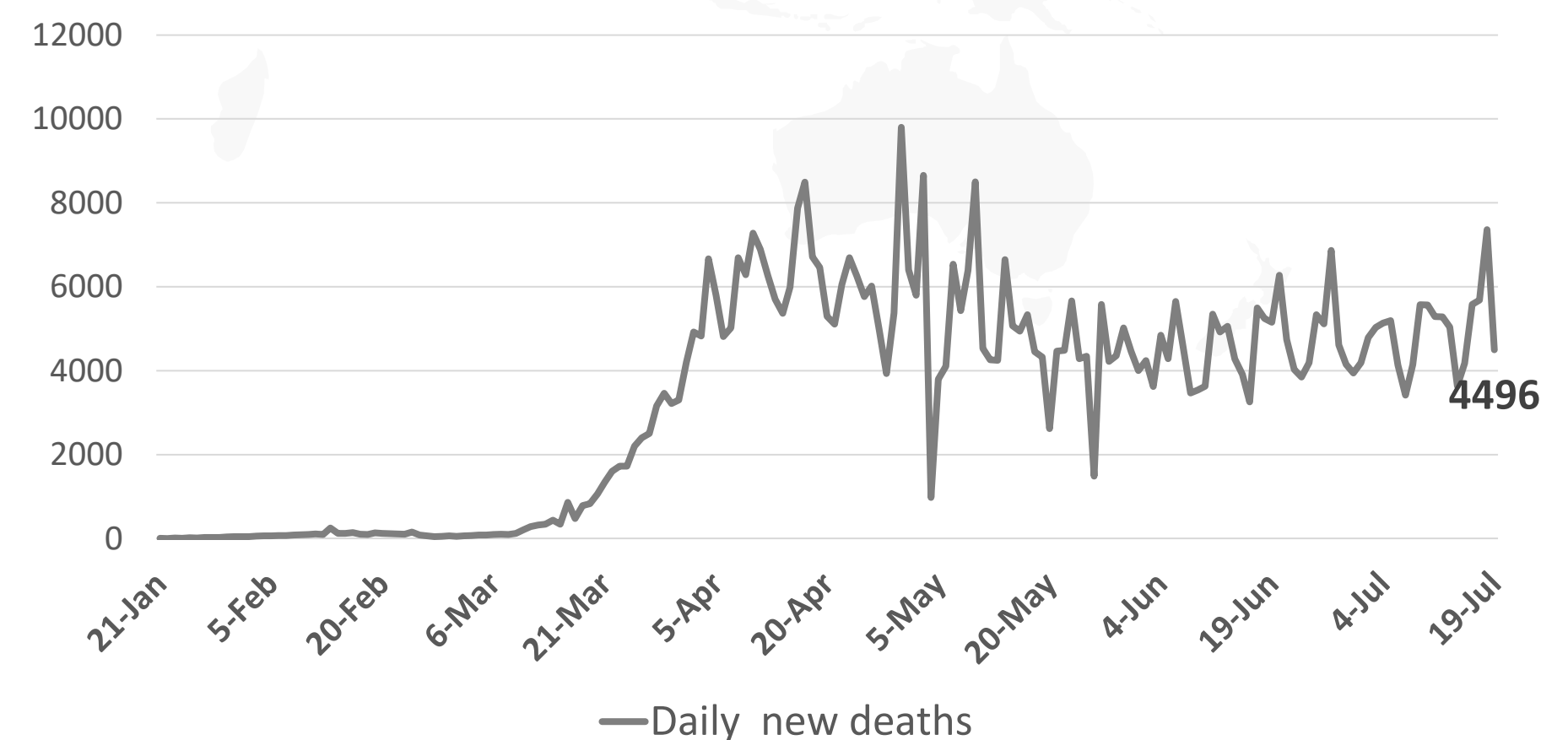
China Outside China

Figure 2: Daily new infected COVID-19 cases (china and the rest of the world)



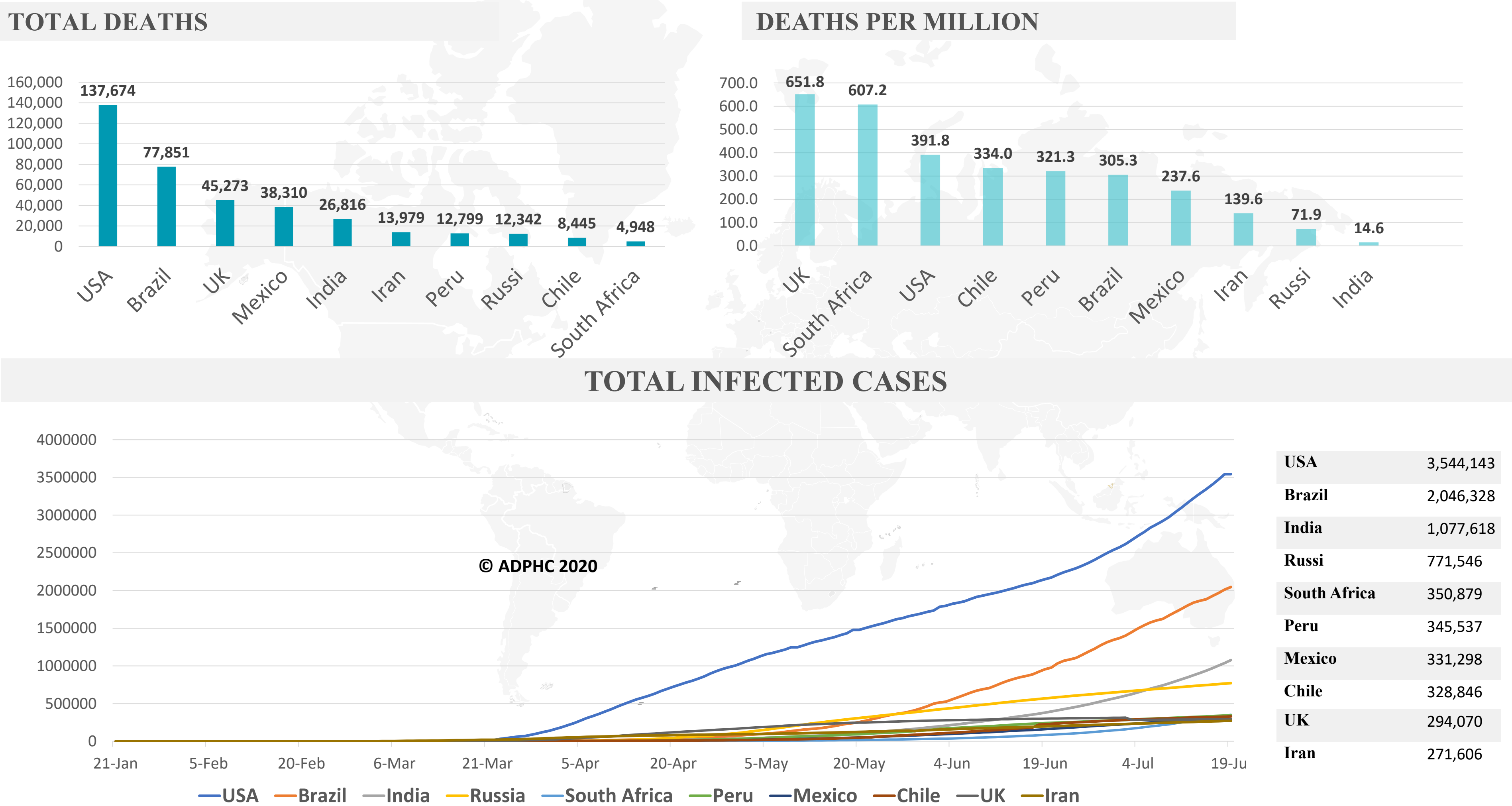
China Outside china

Figure 4: Global daily new deaths due to COVID-19 (china and rest world)



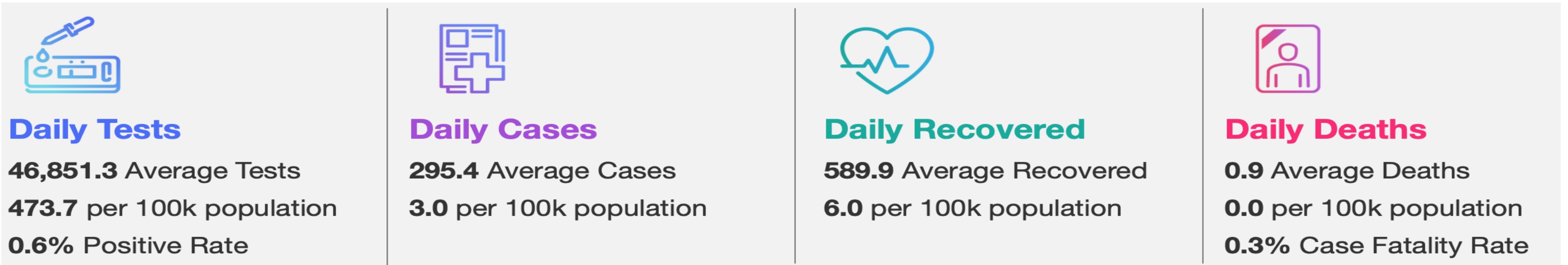
Daily new deaths

Figure 3: Top 10 countries in the total number of cases due to COVID-19



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Figure 5: COVID19 STATUS IN THE UAE (Federal Competitiveness and Statistics Authority dashboard)



TOTAL NUMBER OF INFECTED AND RECOVERED CASES DUE TO COVID-19 REPORTED BY THE UAE

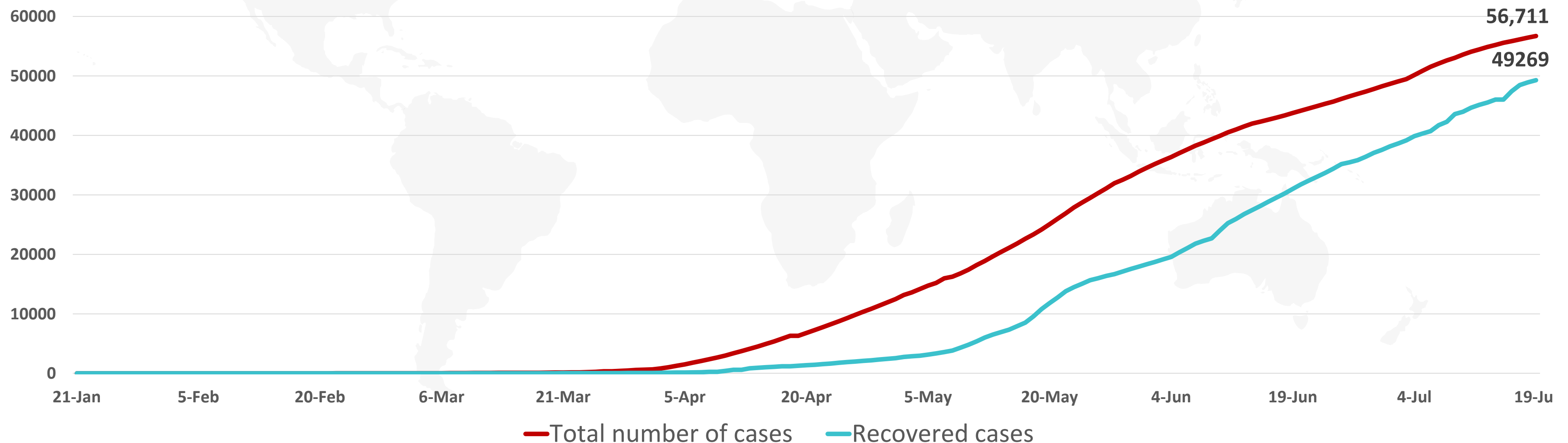
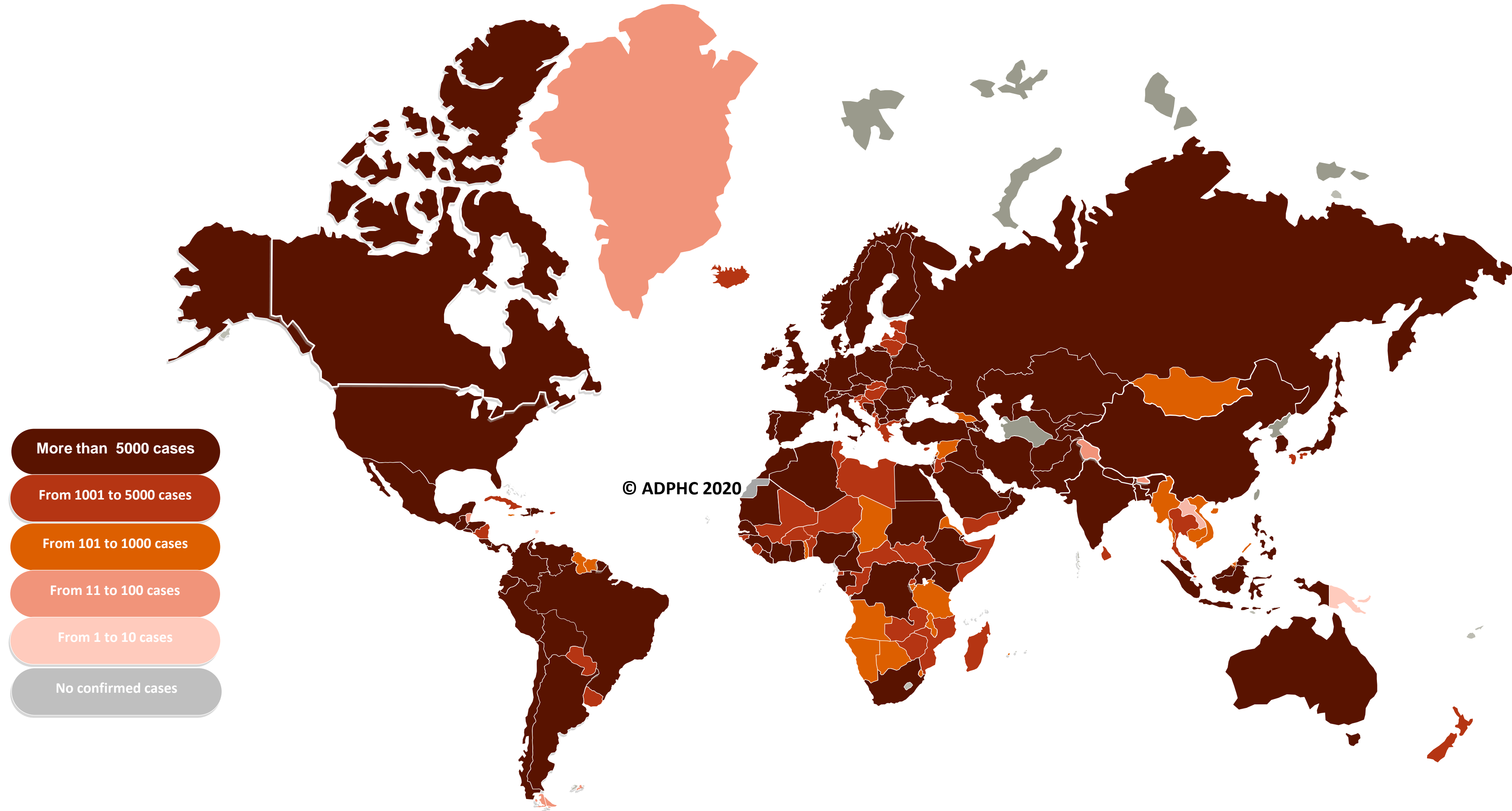


Figure 7A : Global distribution of COVID-19 cases



More than 5000 cases

From 1001 to 5000 cases

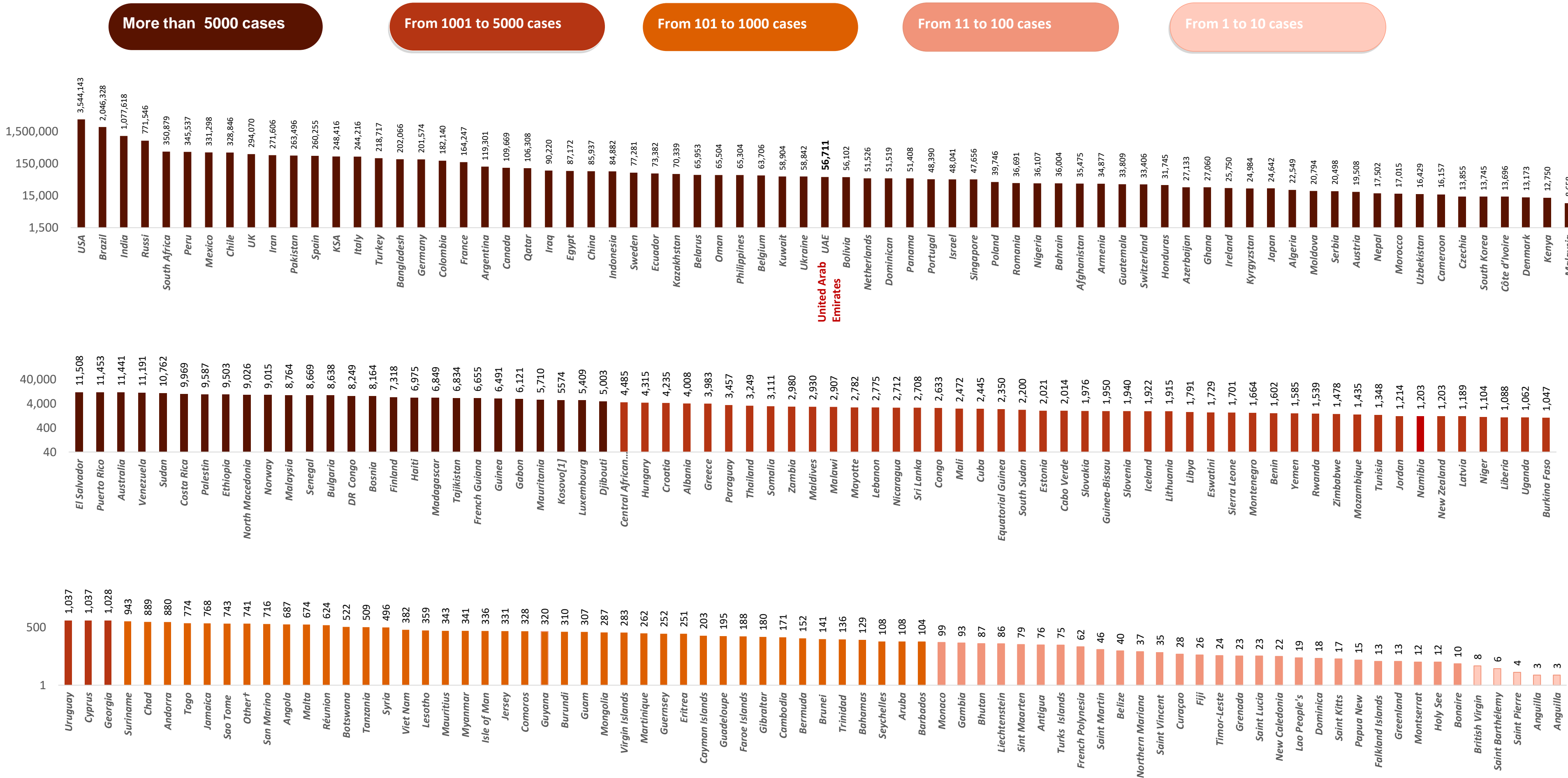
From 101 to 1000 cases

From 11 to 100 cases

From 1 to 10 cases

No confirmed cases

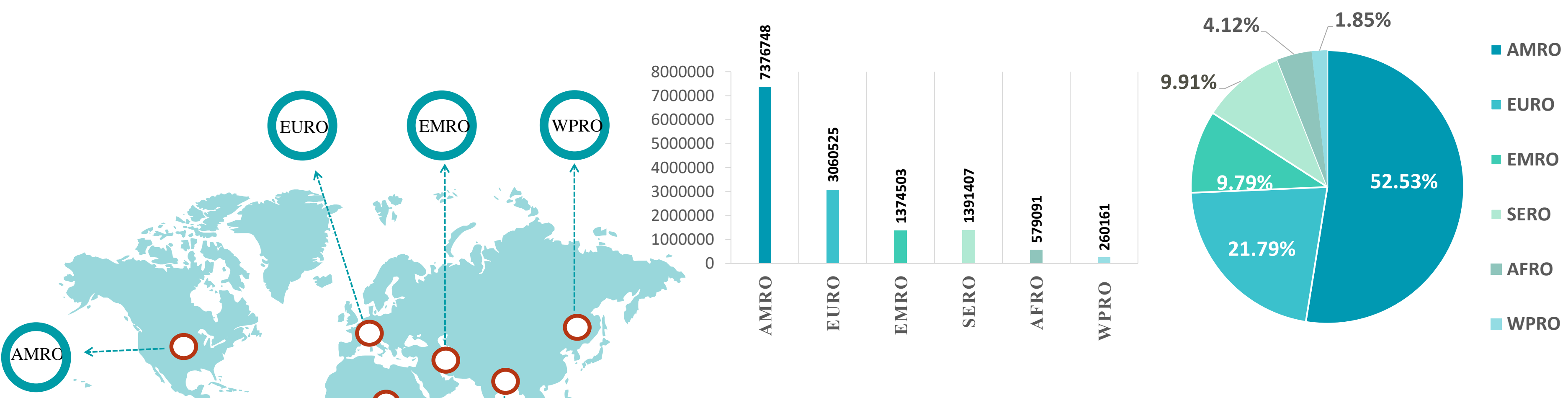
Figure 7B: Bar chart illustrate the global distribution of COVID19 cases



Other*: includes cases and deaths reported under the international conveyance(Diamond Princess)

Figure 8: illustrate the Global distribution of COVID19 cases per region

INFECTED



DEATH

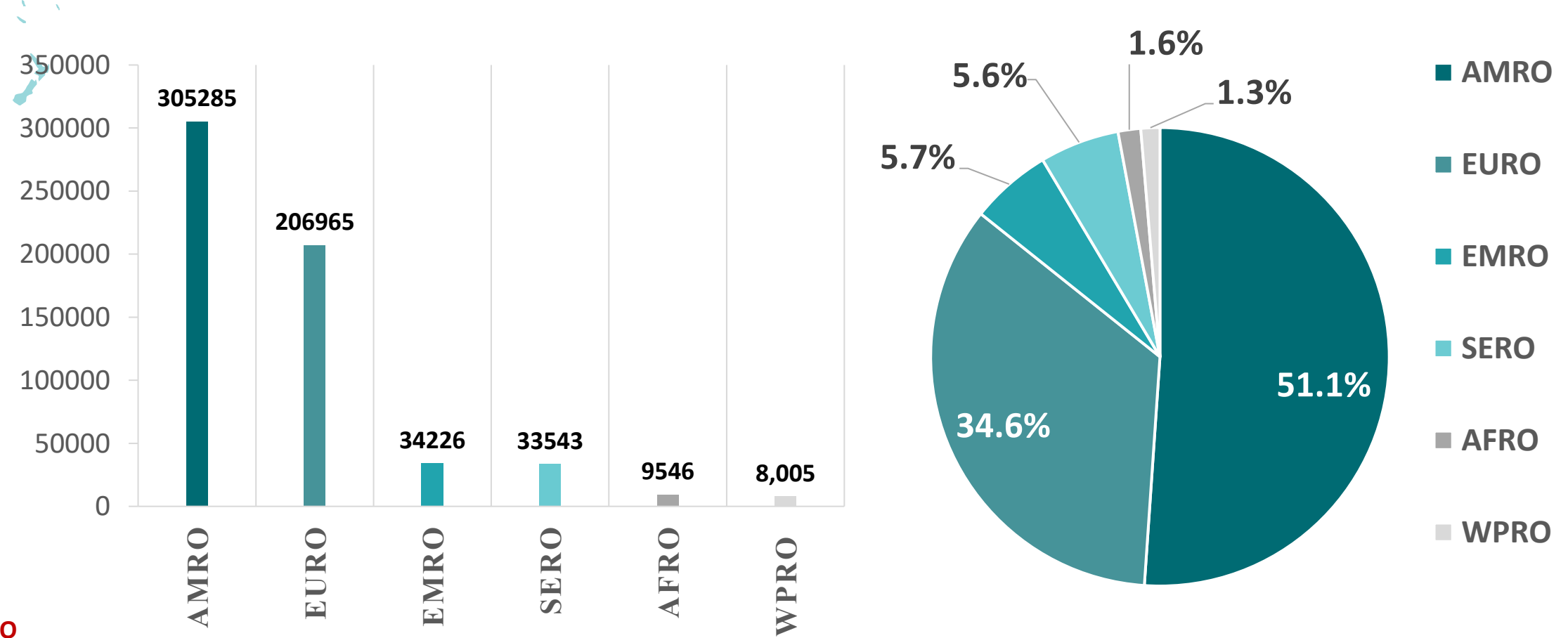
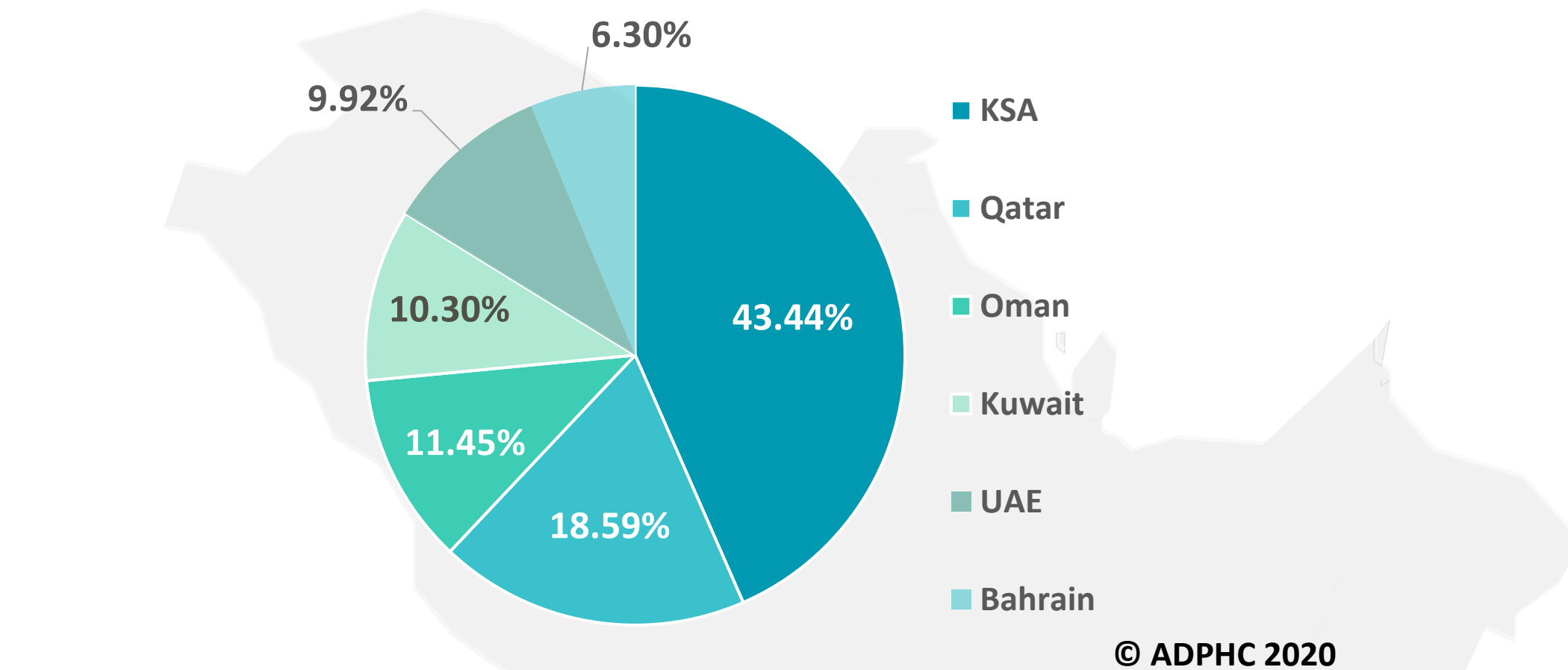
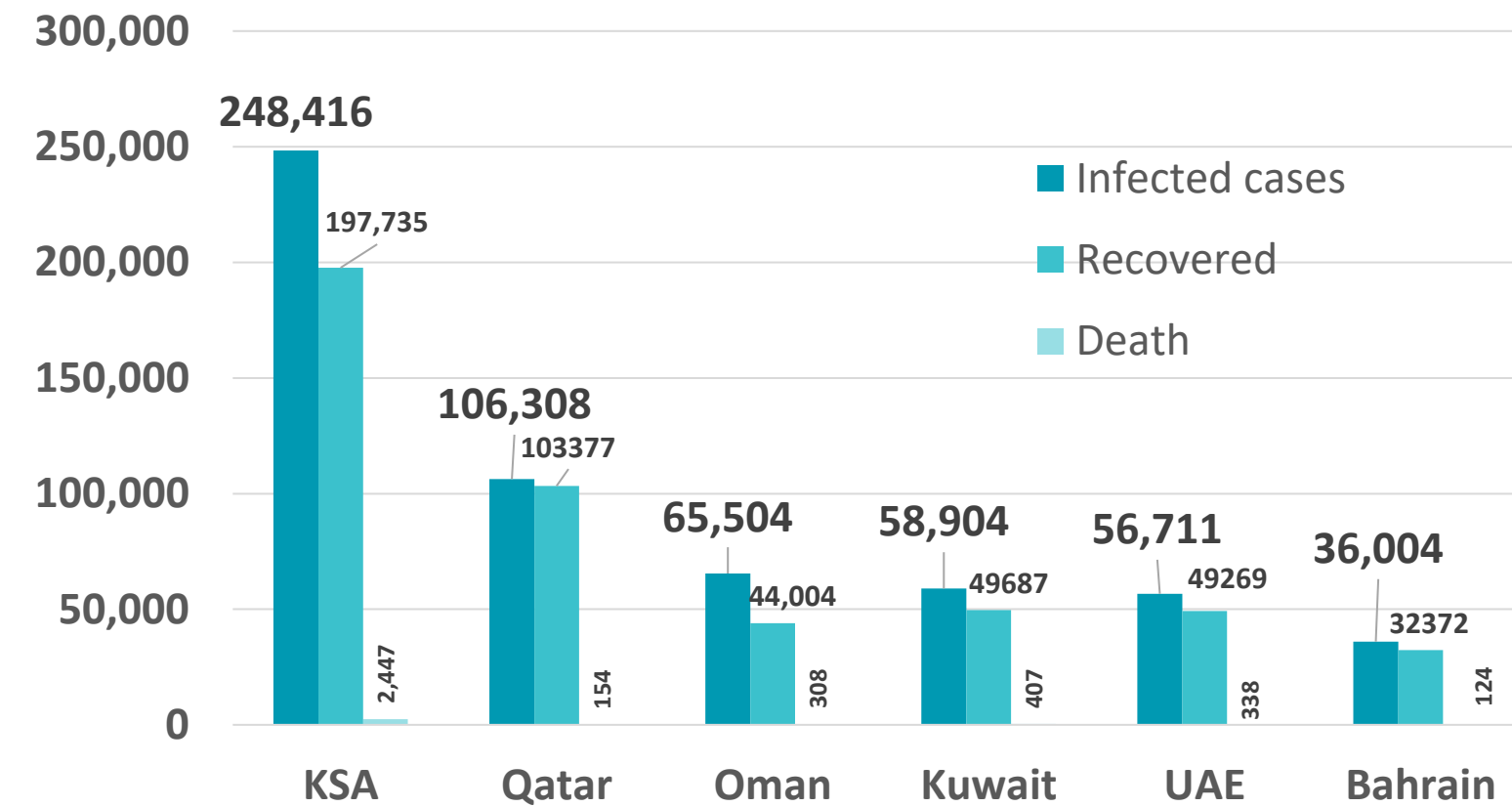


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries

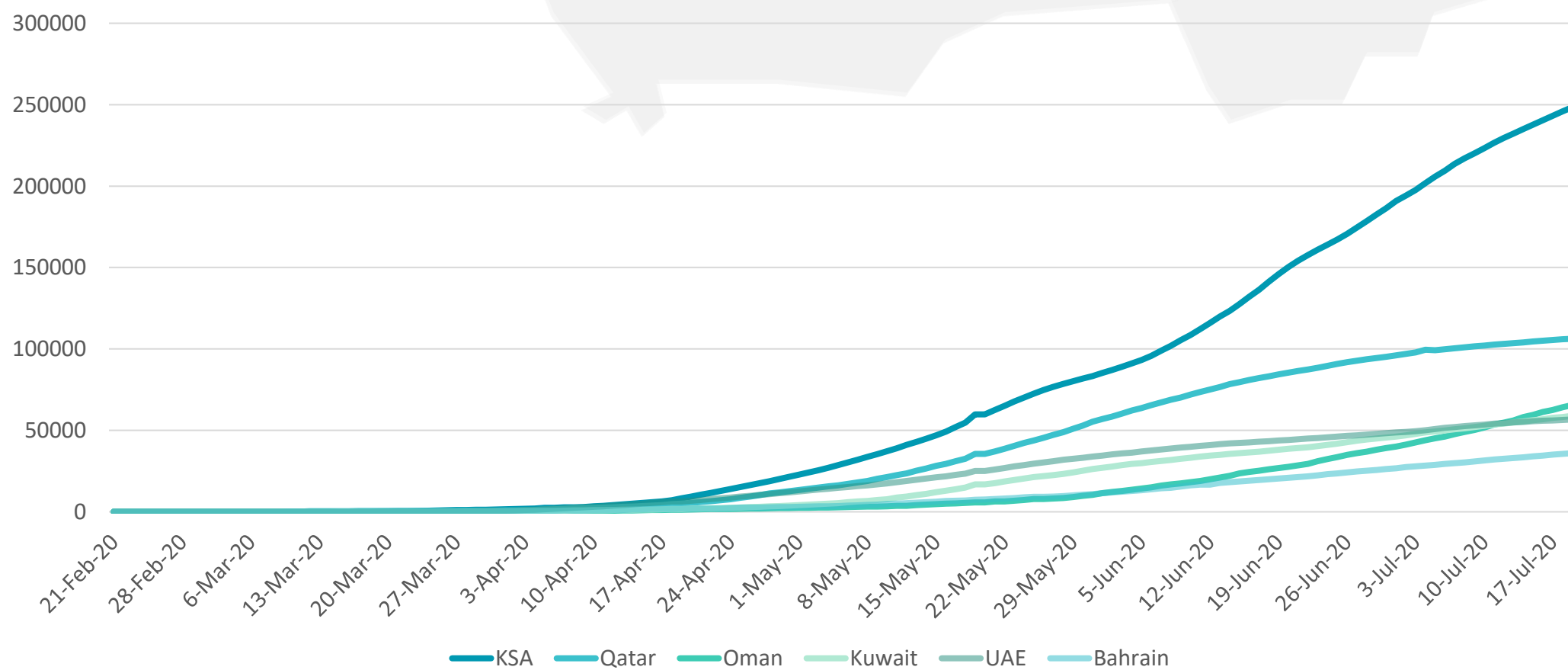
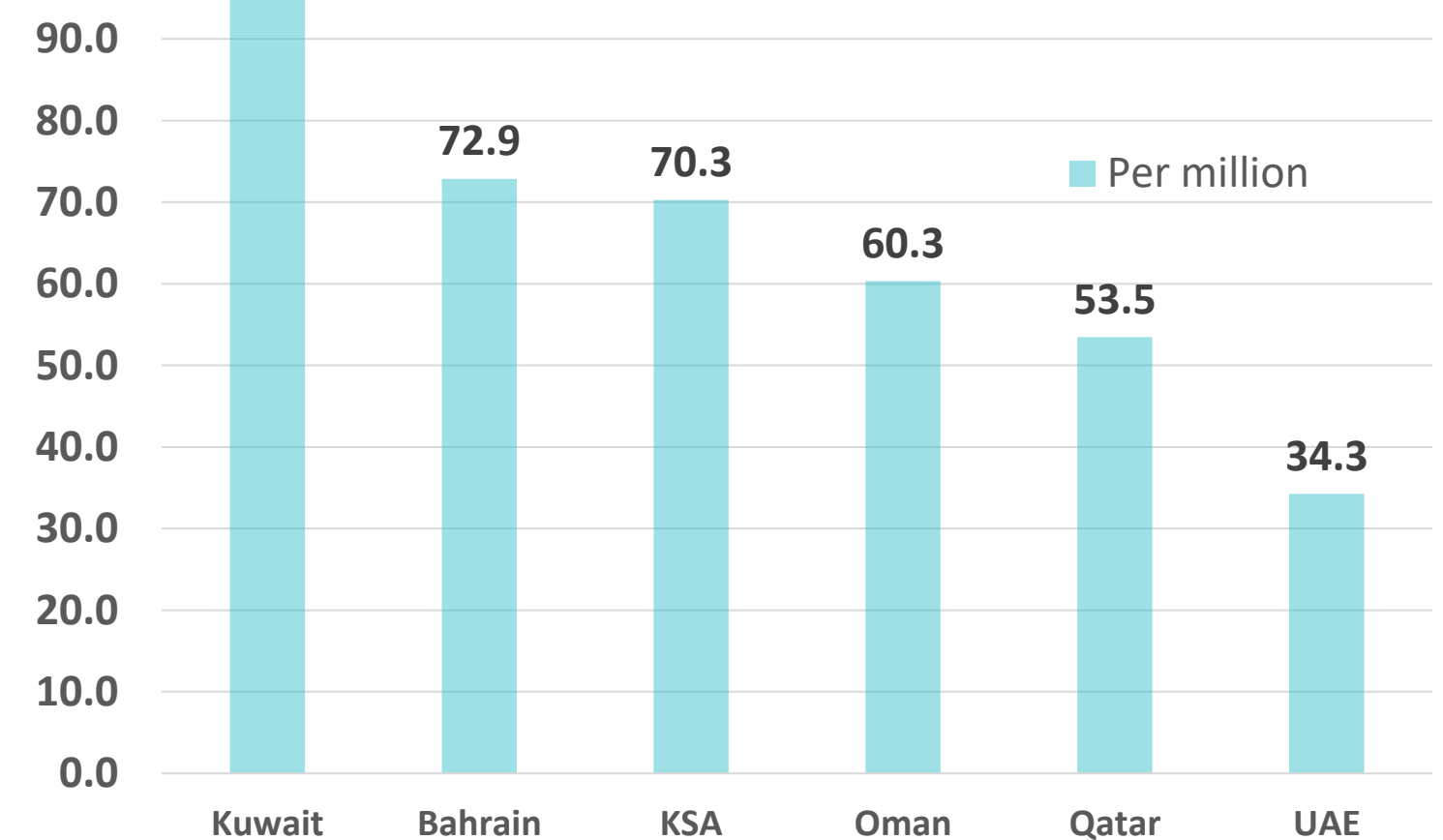
TOTAL NUMBER OF INFECTED CASES



TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



DEATH PER MILLION



Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: [WHO](#)

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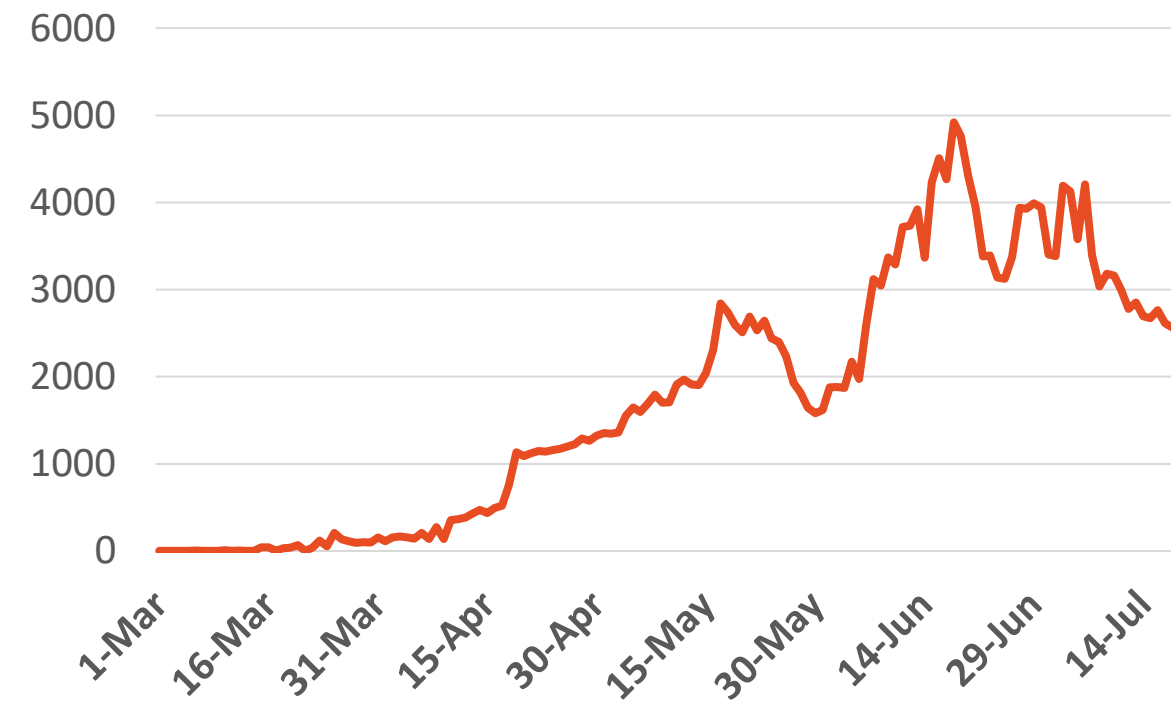
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries

UAE



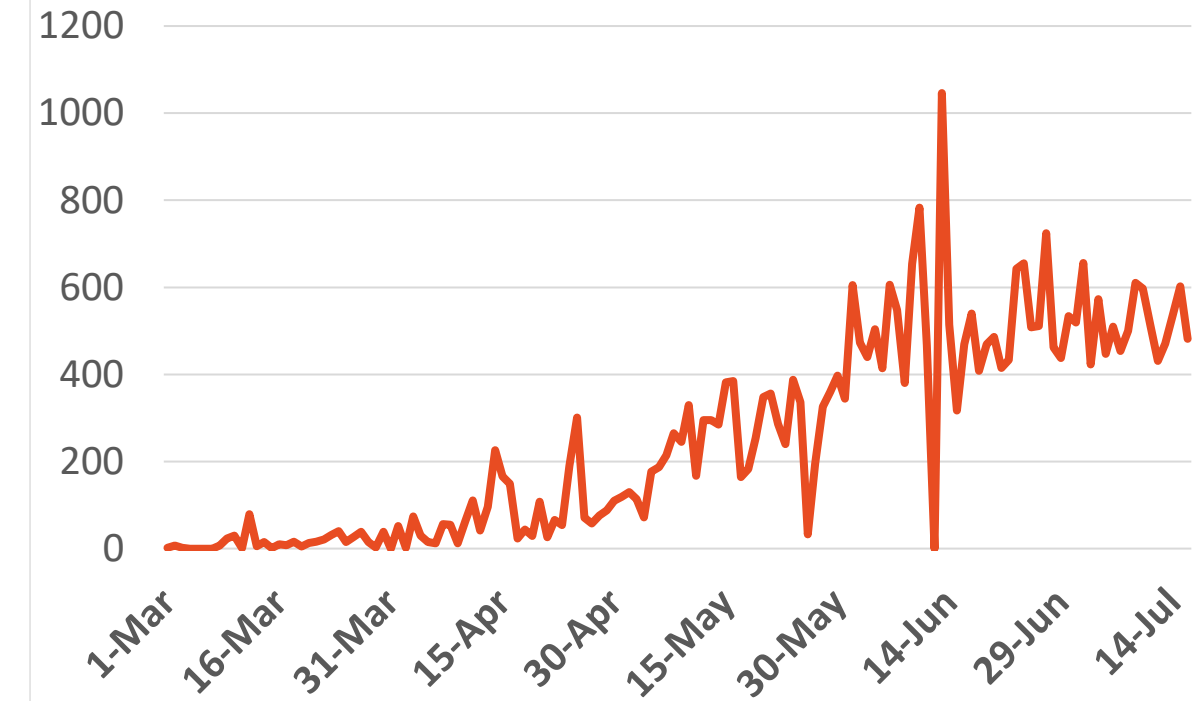
Source : National Emergency Crisis and Disaster Management Authority

KSA



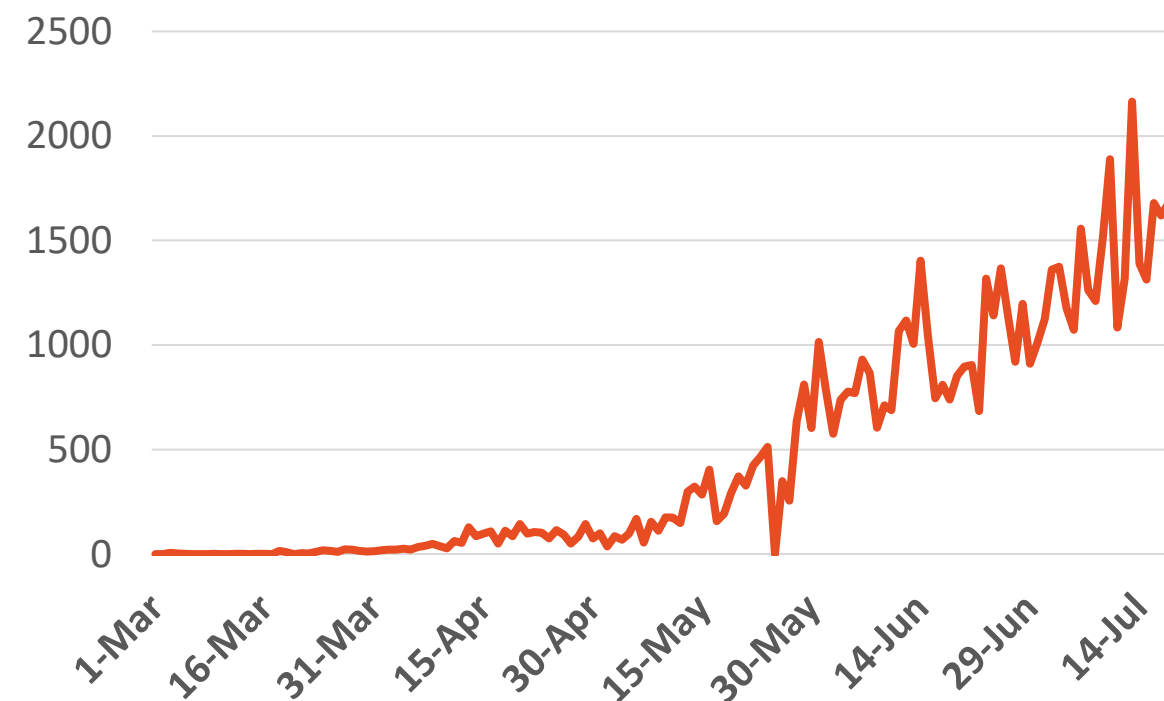
Source : KSA ministry of health

Bahrain



Source :WHO

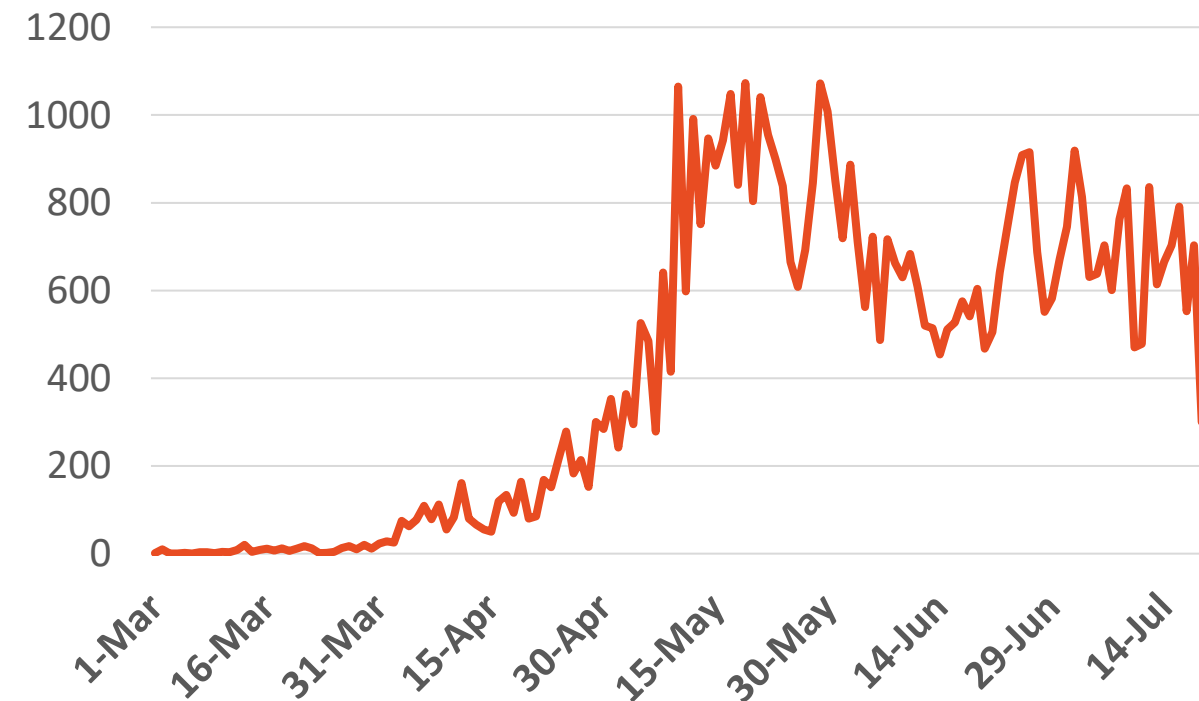
Oman



Source :Oman ministry of health

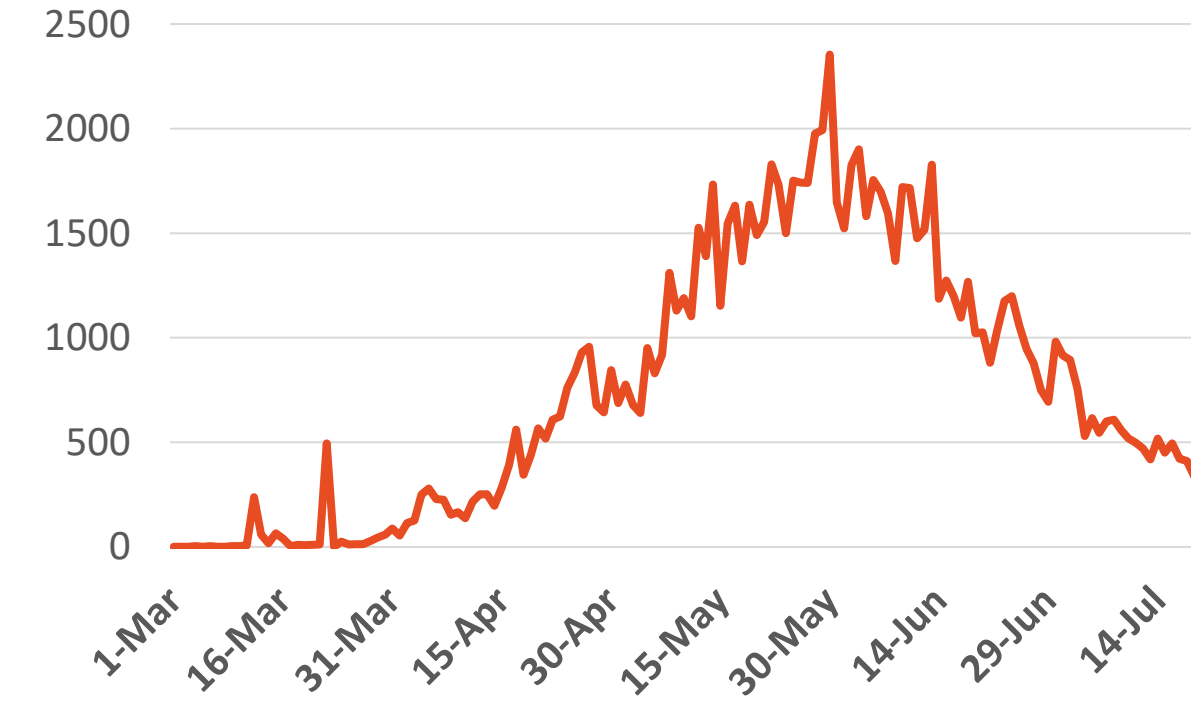
Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

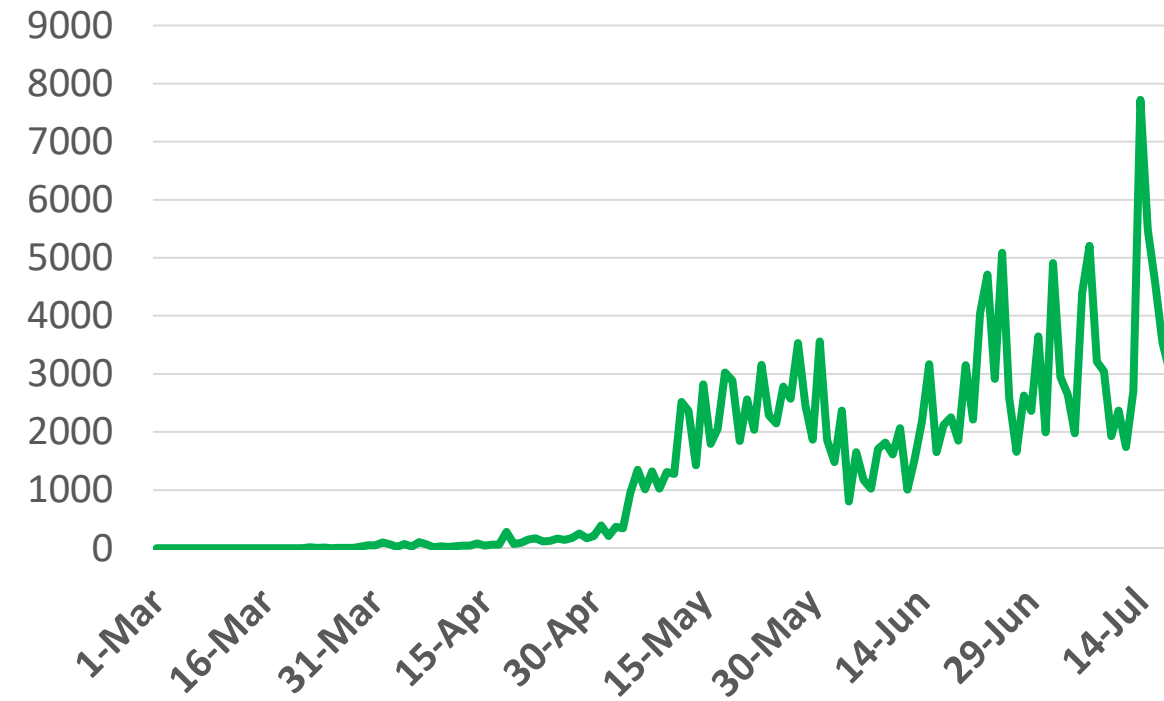
Figure 11: Comparative analysis of the distribution of COVID19 newly recovered cases in GCC Countries

UAE



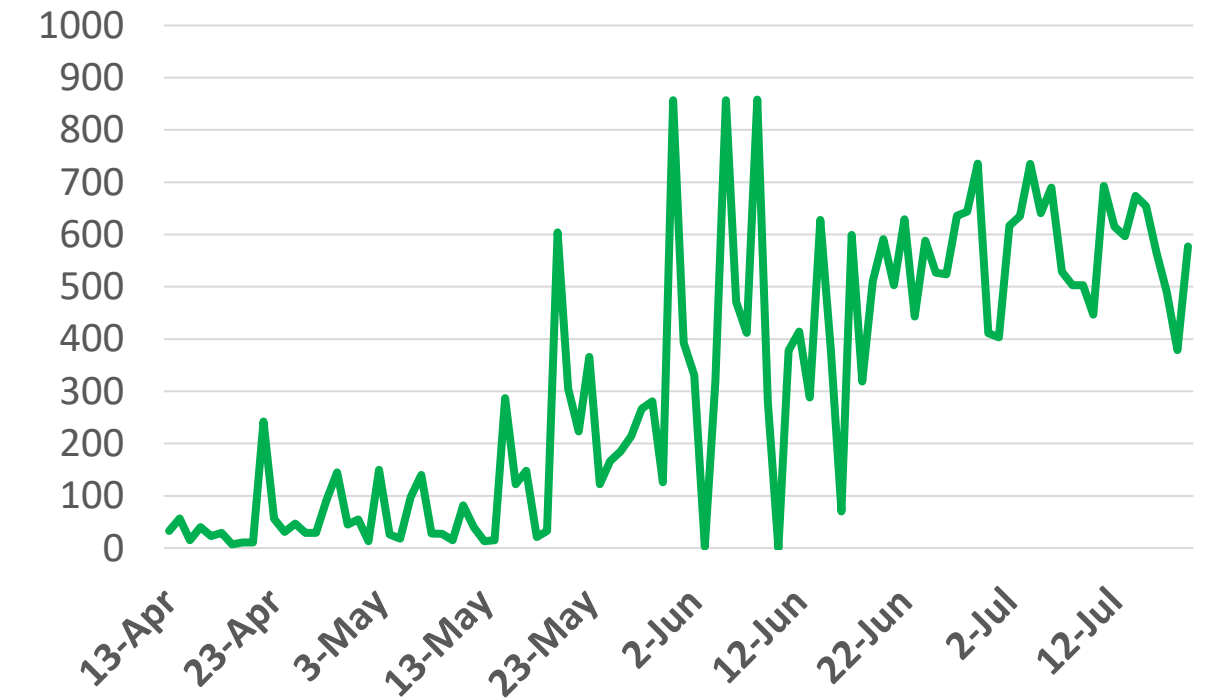
Source : National Emergency Crisis and Disaster Management Authority

KSA



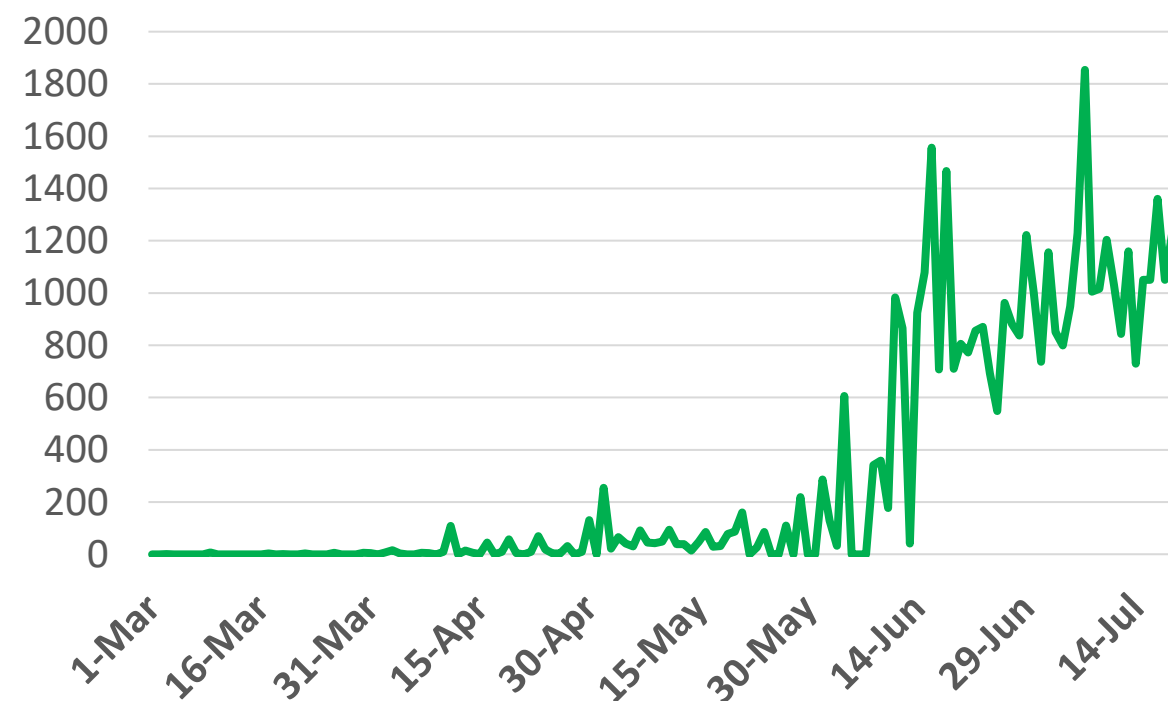
Source : KSA ministry of health

Bahrain



Source : GCCStat

Oman



Source : Oman ministry of health

Kuwait

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Source : Kuwait ministry of health

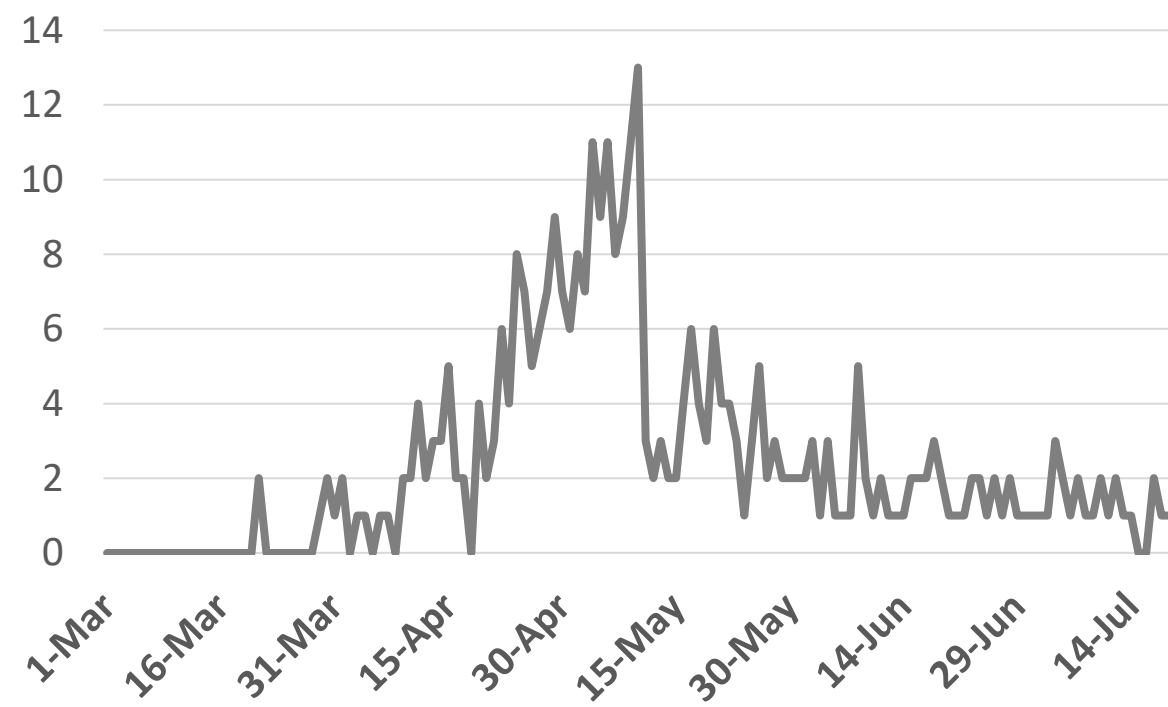
Qatar



Source : Qatar ministry of health

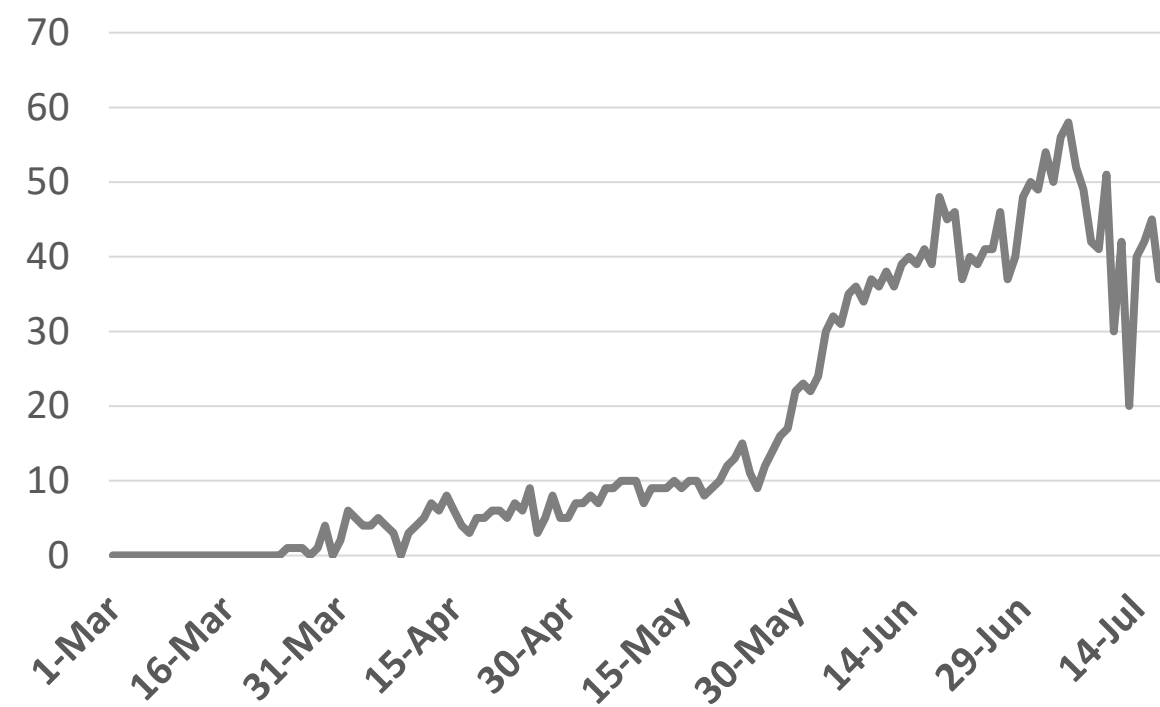
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries

UAE



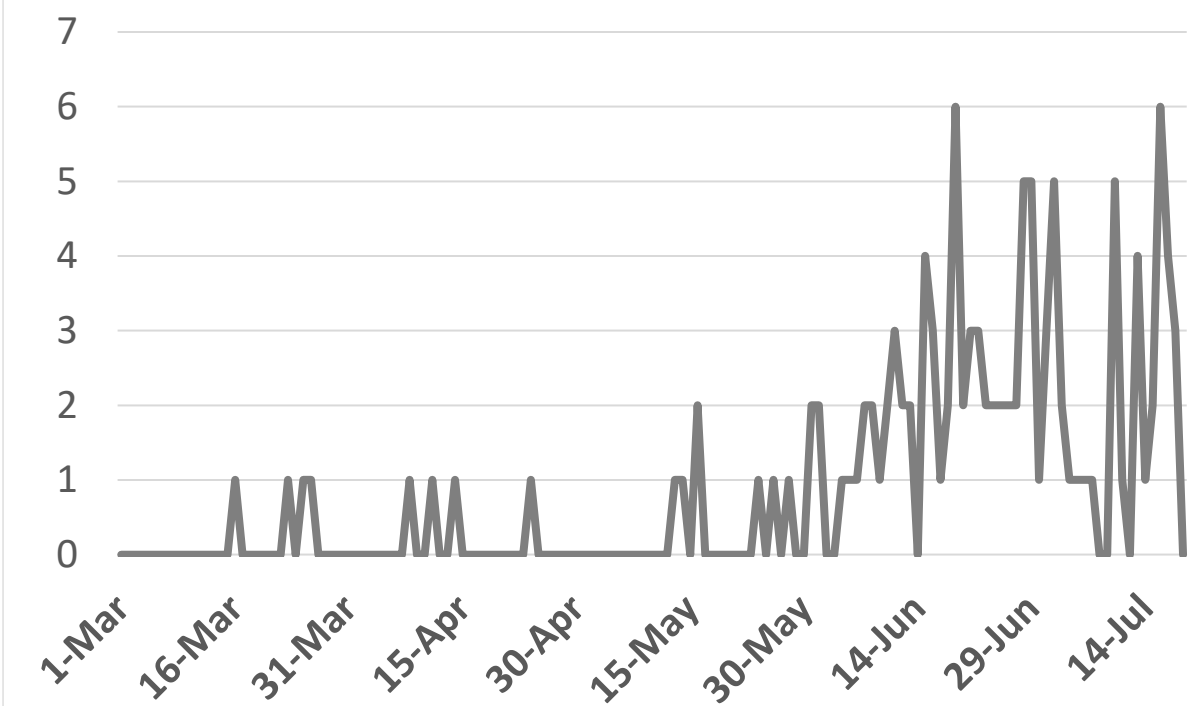
Source : National Emergency Crisis and Disaster Management Authority

KSA



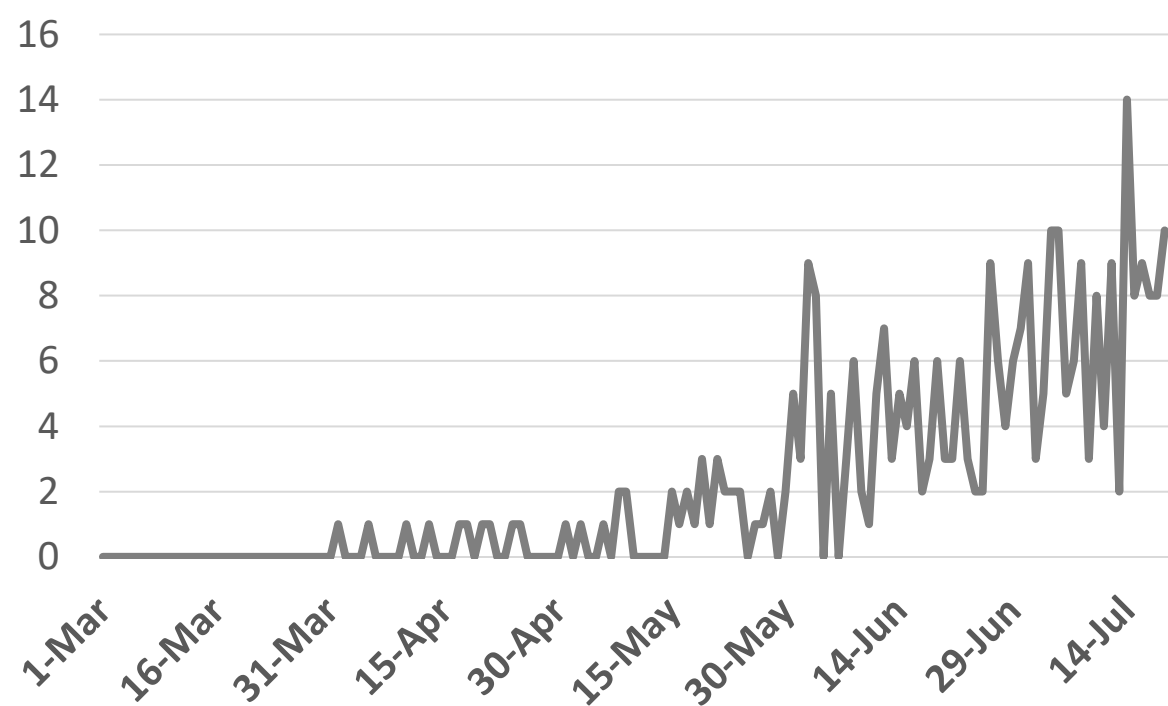
Source : KSA ministry of health

Bahrain



Source :WHO

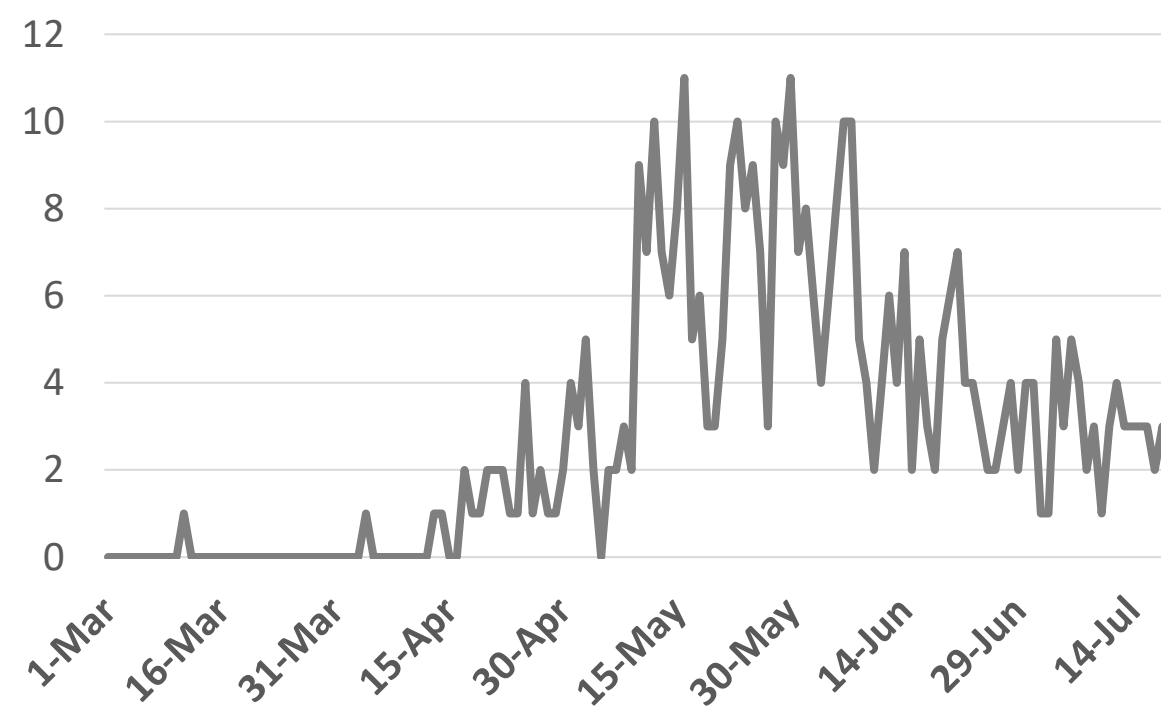
Oman



Source :Oman ministry of health

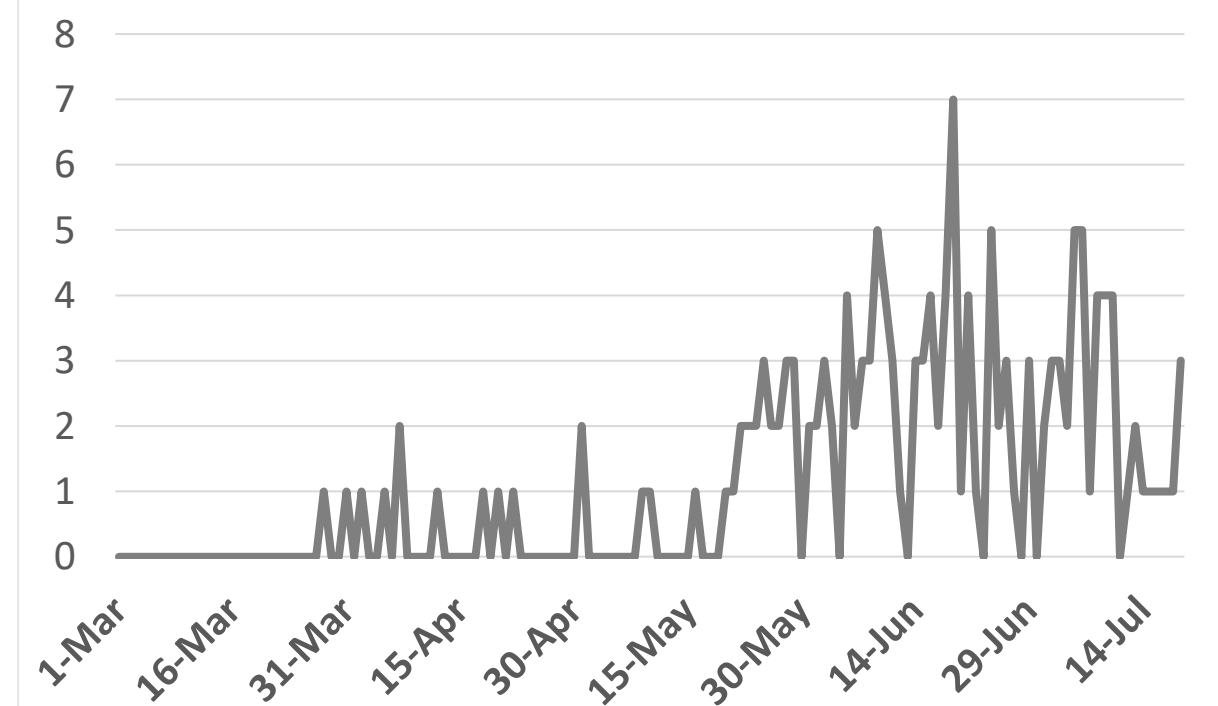
Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

Article 1: Assessing national performance in response to COVID-19

Published

July 15, 2020 [THE LANCET](#)

- The most frequently used outcome measure is the number of COVID-19 deaths. Other outcomes include pulmonary, cardiac, neurological, and other complications. Assessments of national performance must include one or more of these outcome measures obtained consistently over time.
- A checklist of capacities for assessing COVID-19 response systems has been designed. By addressing these seven indicators and quantifying them where possible, we can assess the likelihood of safely removing social restrictions and the opening of borders.

Panel: Proposed performance indicators to assess national performance in response to COVID-19

Ability to detect and break transmission chains

- Percentage of cases found by contact tracing
- Compliance of the community to governmental health directives
- Testing; percentage positive, capacity per million population, policy, turnaround time

Ability to minimise deaths and severe complications

- Deaths per million population
- Ventilator capacity per million population

Minimise hospital-acquired COVID-19

- Personal protective equipment availability
- Health-care-associated infections

Fiscal support for individuals and companies

- Programmes functioning for those in isolation or quarantine
- Programmes functioning for those threatened by social restrictions

Maintenance of food and medicine supply chains

- Demonstrable actions in place

Protection and support for vulnerable and neglected populations in the community

- Recent clusters in vulnerable groups
- Demonstrable actions in place

Maintenance of usual health services

- Essential services are never reduced
- Non-essential services are restored promptly



Article 2: Airborne Transmission of SARS-CoV-2 Theoretical Considerations and Available Evidence

Published

July 13, 2020 in [THE JAMA](#)

- The COVID-19 pandemic has reawakened the long standing debate about the extent to which SARS CoV-2 are transmitted through respiratory droplets vs aerosols. Experimental data support the possibility that SARS-CoV-2 may be transmitted by aerosols even in the absence of aerosol generating procedures.
- The reproduction number (R0) for COVID-19 was estimated to be about 2.5 that is similar to influenza and different from measles that are spread via aerosols with R0 closer to 18. Considering that most people with COVID-19 are contagious for about a week, a R0 of 2-3 is quite small given the large number of interactions/personal contacts that most people have under normal circumstances within a 7 day period. Either the amount of SARS-CoV-2 required to cause infection is much larger than measles or aerosols are not the mode of transmission.
- People infected with SARS-CoV-2 may be producing both droplets and aerosols but most of these discharge are not infecting other people. This pattern seems consistent with secretions that fall rapidly to the ground within a narrow radius of the infected person than with virus laden aerosols that remain suspended in the air where they can be inhaled by anyone in the vicinity.
- The most practical measurement of the relative importance of aerosols vs droplets are studies on the relative effectiveness of respiratory protection targeting aerosols vs droplets. If respiratory viruses are predominantly spread via aerosols, N95 respirators would be more protective than medical masks alone. A recent meta-analysis made this claim.
- There are no perfect experimental data proving/disproving droplet vs aerosol based transmission of SARS-CoV-2. The balance of evidence seems inconsistent with aerosol based transmission of SARS-CoV-2. Maintaining six feet distance from other people and wearing medical masks, high quality cloth masks should be adequate to minimize the spread of SARS-CoV-2.



Article 3:

SARS-CoV-2-specific T cell immunity in cases of COVID-19 and SARS, and uninfected controls

Published

July 13, 2020 in [THE NATURE](#)

- the study examined T cell immunity in individuals who had recovered from coronavirus infections. The study identified the presence of virus-specific T cells in 3 groups of people:
 - T cells specific for SARS-CoV-2 were identified in all patients **that recovered from COVID-19.**
 - Patients who **recovered from the 2003 SARS-CoV1** outbreaks were shown to carry virus-specific T-cells that showed some cross-reactivity to the current SARS-CoV-2.
 - Over half apparently healthy individuals were found to carry SARS-CoV-2-specific T cells, which may have arisen through **exposure to other coronaviruses during some point in their life.**

Importance of this study

- One subset of T cells confers immunological memory and protects individuals against past encounters with pathogens/infections. It is important to confirm the prolonged persistence of T cells as this knowledge will add to the knowledge of how individuals respond to infection.
- As mentioned above, vaccination is artificially induced acquired immunity. The persistence of memory T-cells is an exciting observation since it offers great hope in vaccine development.

Summarized by subject matter expert



Continued

Table. Characteristics of Coronavirus Disease 2019 Clinical Trials

Characteristic	Trials, No. (%)	
	Randomized (n = 562)	Nonrandomized (n = 112) ^a
Multicenter trials	201 (35.8)	23 (20.5)
Multinational trials	22 (3.9)	1 (0.9)
Any blinding ^b	331 (58.9)	3 (2.7)
Intervention ^c		
Chloroquines ^d	132 (23.5)	11 (9.8)
Biologicals	177 (31.5)	60 (53.6)
Convalescent plasma	30 (5.4)	18 (16.1)
Tocilizumab	21 (3.7)	6 (5.4)
Tyrosine kinase inhibitor	20 (3.6)	12 (10.7)
Antivirals	55 (9.8)	1 (0.9)
Remdesevir	9 (1.6)	0
Protease inhibitors	37 (6.8)	1 (0.9)
Antibiotics	49 (8.7)	5 (4.5)
Azithromycin	40 (7.1)	4 (3.6)
Primary end point ^e		
Time to symptom and sign resolution	212 (37.7)	51 (45.5)
Mortality	180 (32.0)	23 (20.5)
Viral clearance	124 (22.1)	16 (14.3)
Need for mechanical ventilation	57 (10.1)	5 (4.5)
Industry sponsorship	175 (31.1)	19 (17.0)



THANK YOU

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