

# SCIENTIFIC RESEARCH MONITORING ON COVID-19

**20 SEPTEMBER 2020**

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# SCIENTIFIC RESEARCH MONITORING ON COVID-19

## (ISSUE 231)

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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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.

For further inquiries you may communicate with us as [PHP@adphc.gov.ae](mailto:PHP@adphc.gov.ae)

# RESEARCH UPDATES

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## Immunology

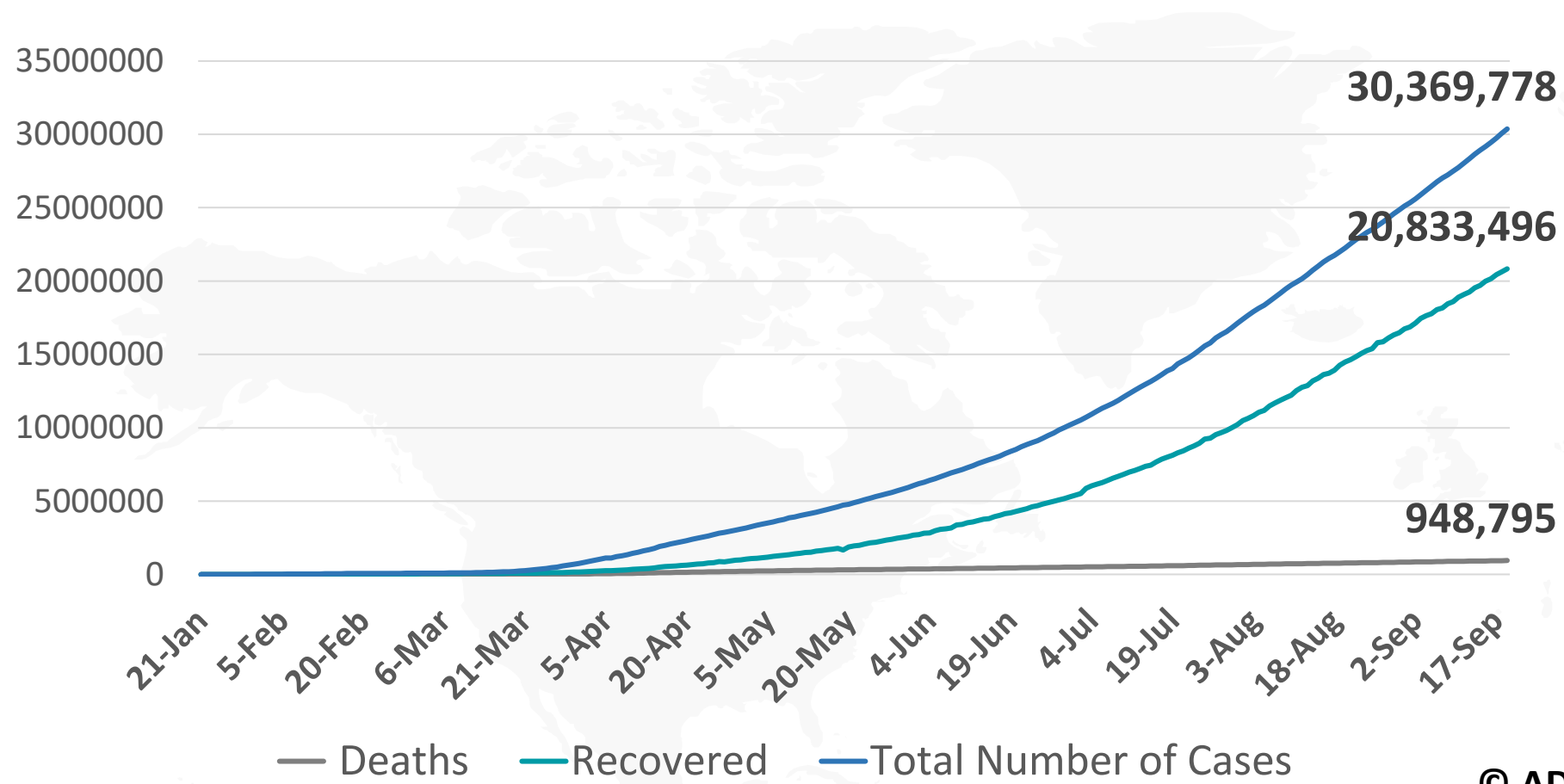
**COVID-19 and the Path to  
Immunity**

## Public Health Response

**Bridging the Gap at Warp  
Speed — Delivering Options  
for Preventing and Treating  
Covid-19**

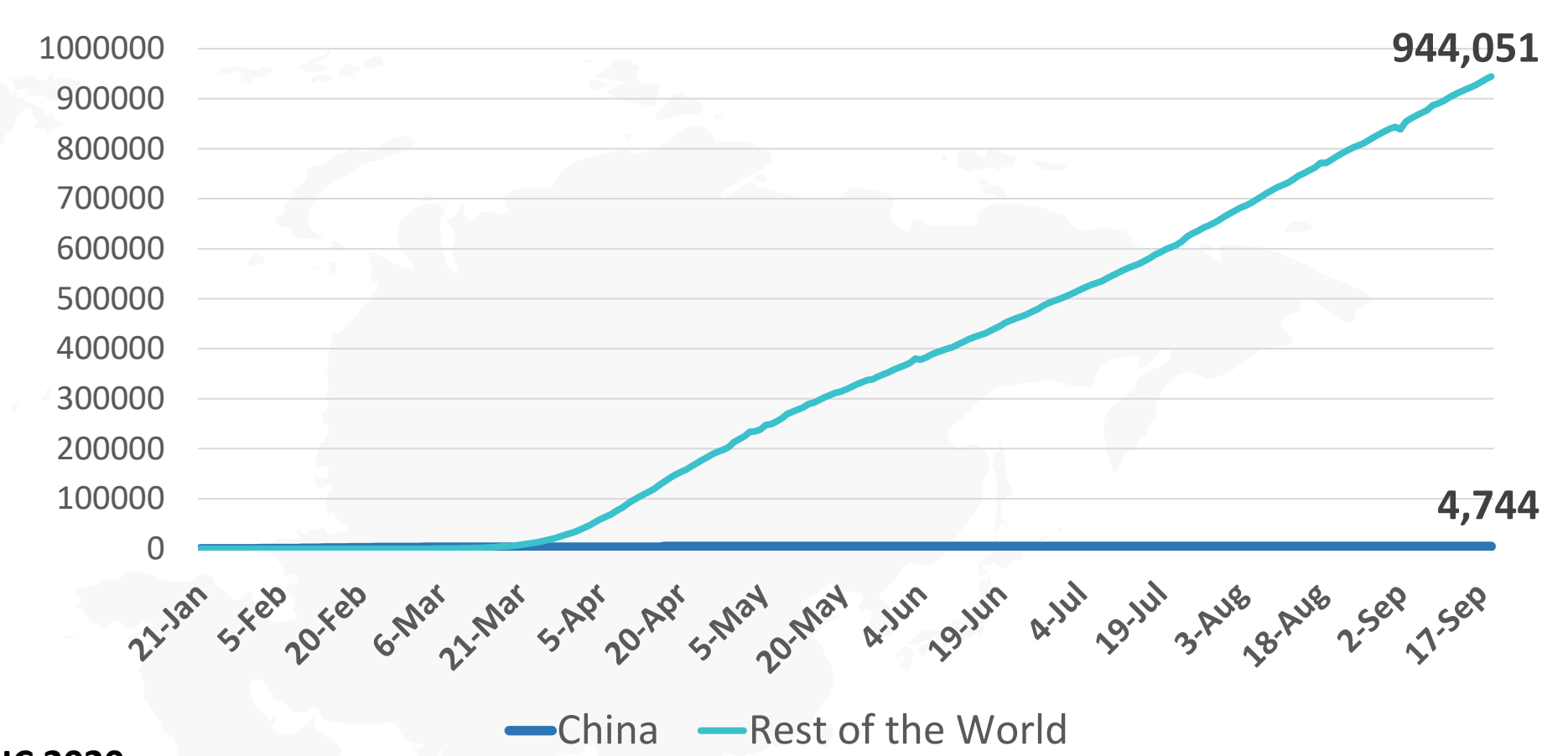


**Figure 1: Total Number of Infected, Recovered, and Death Cases**

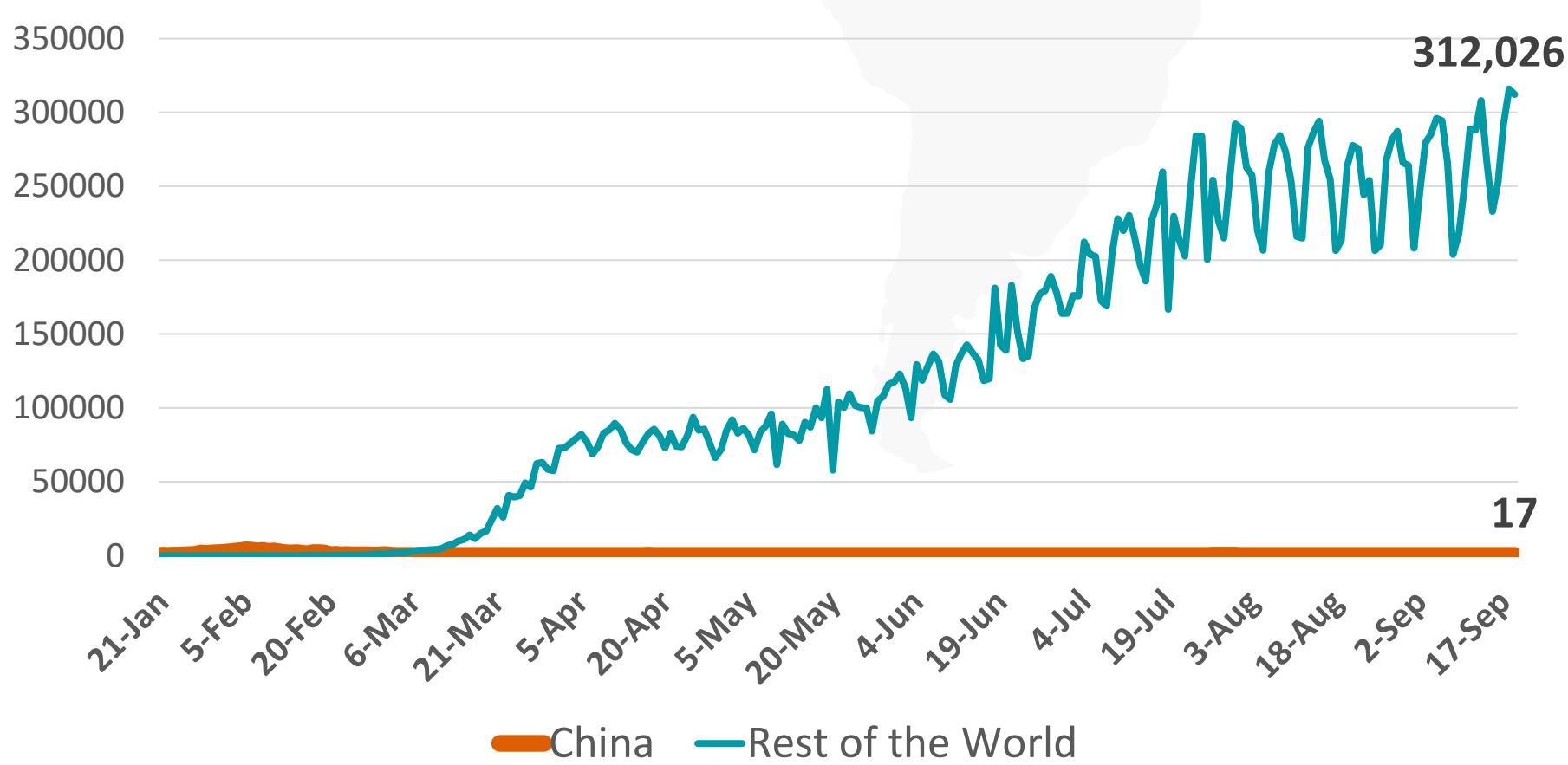


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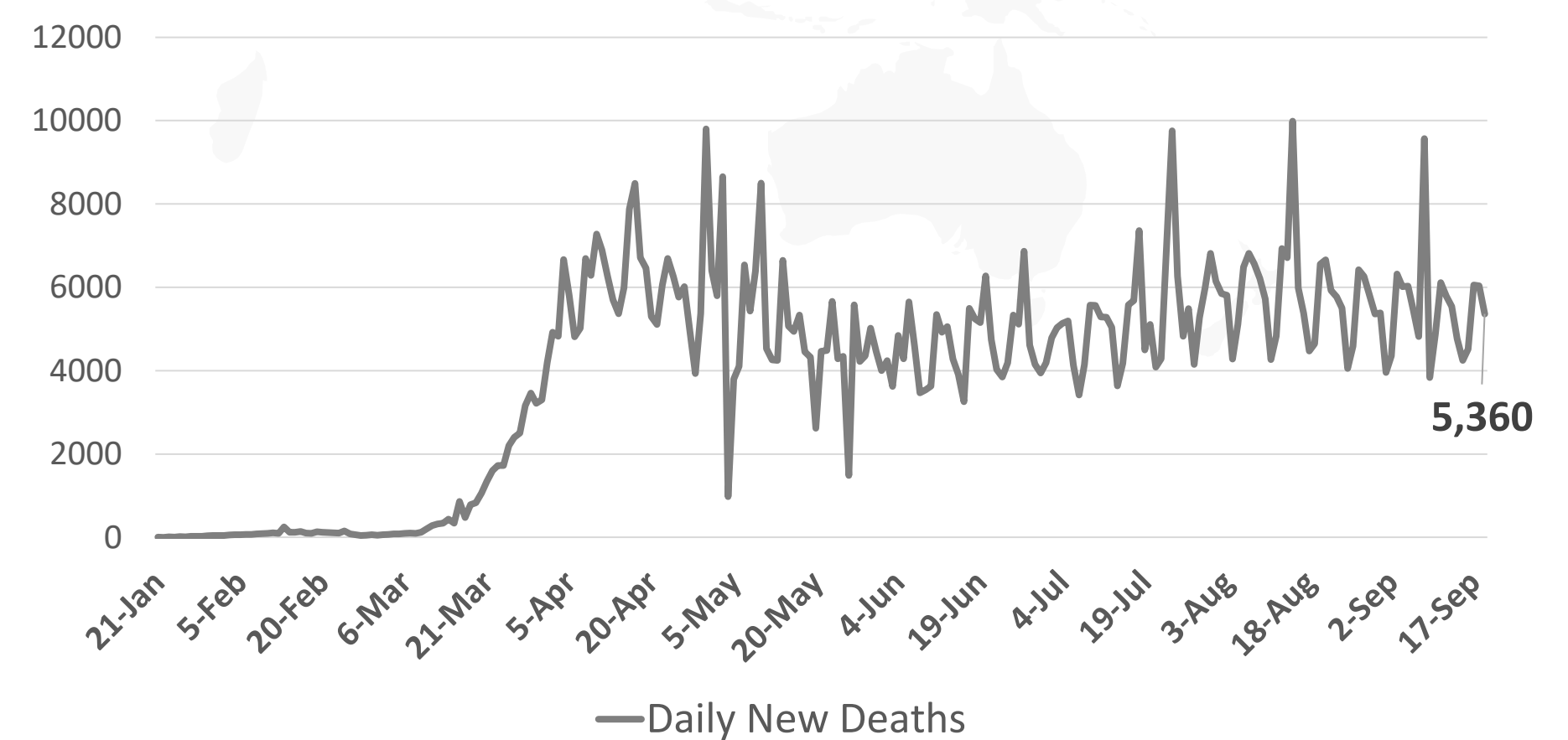
**Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)**



**Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)**

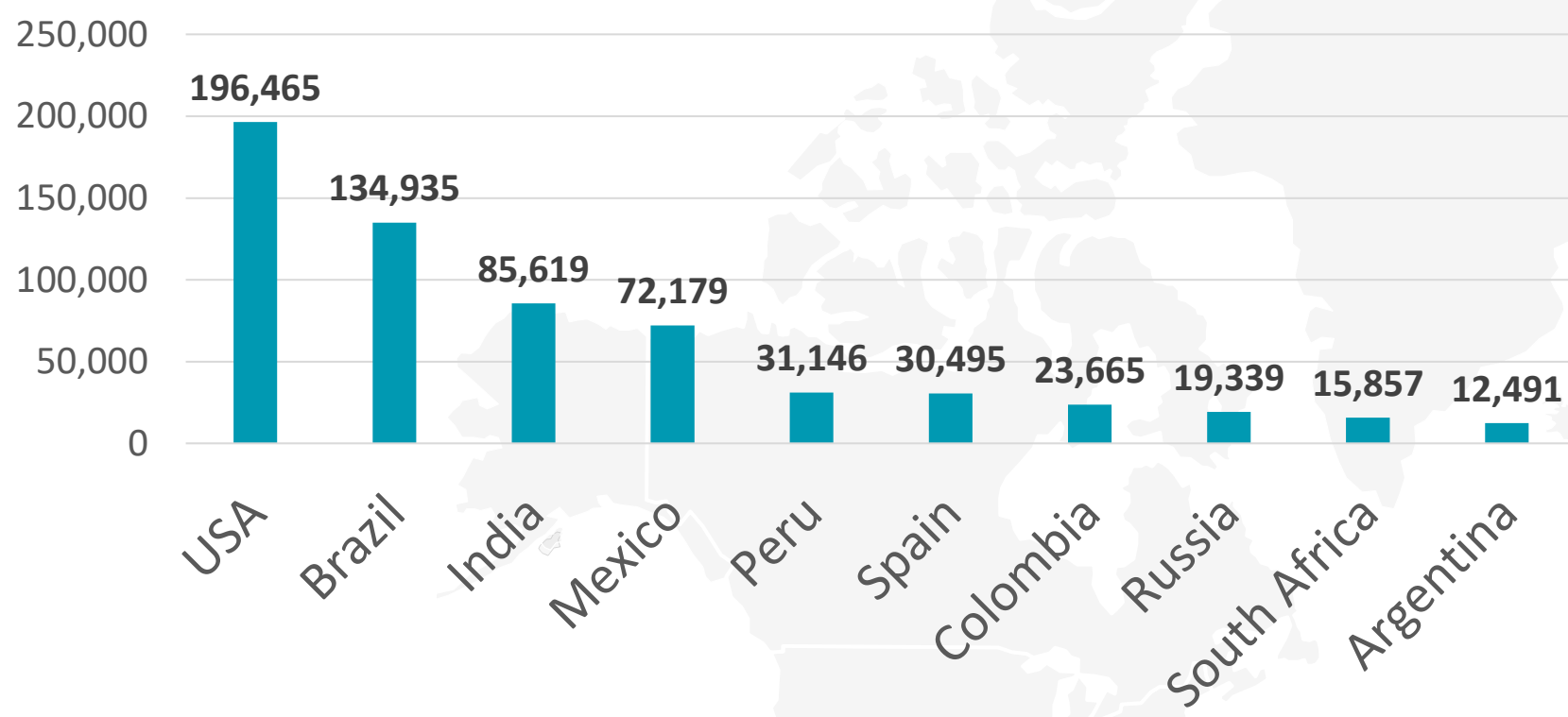


**Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)**

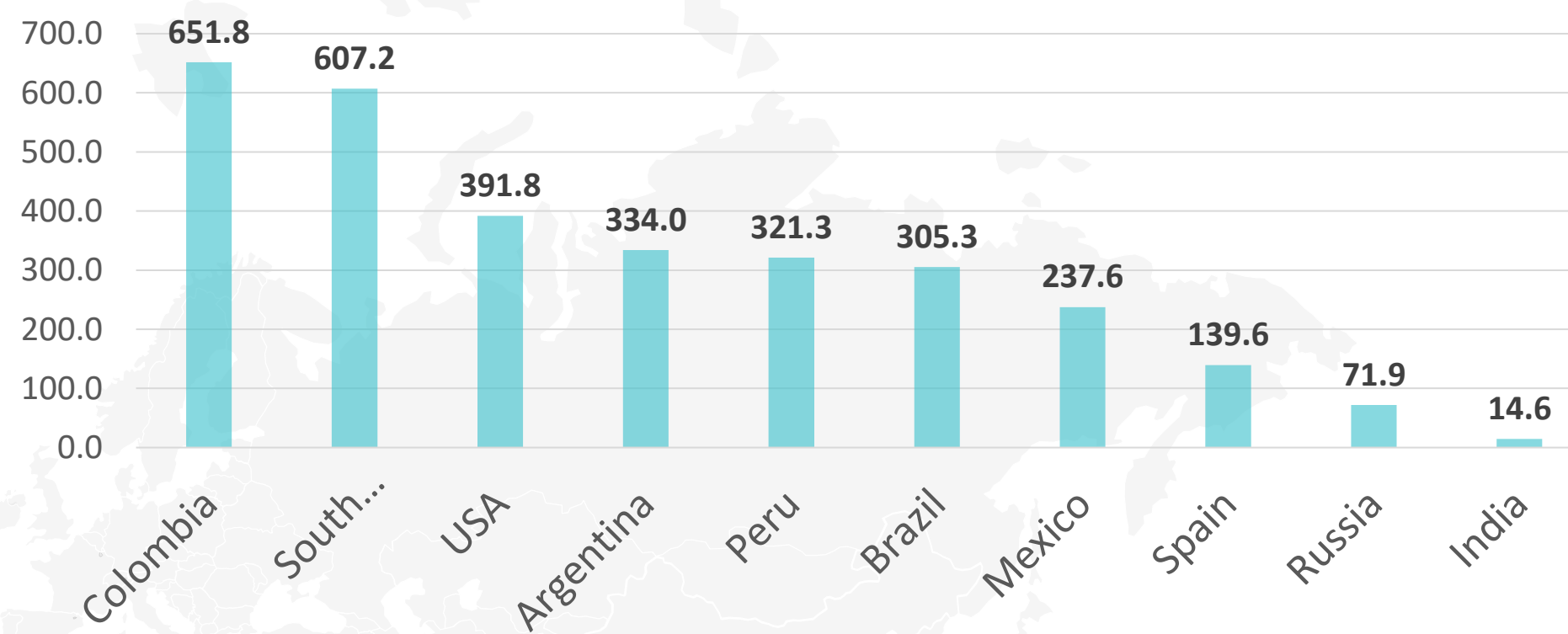


## Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

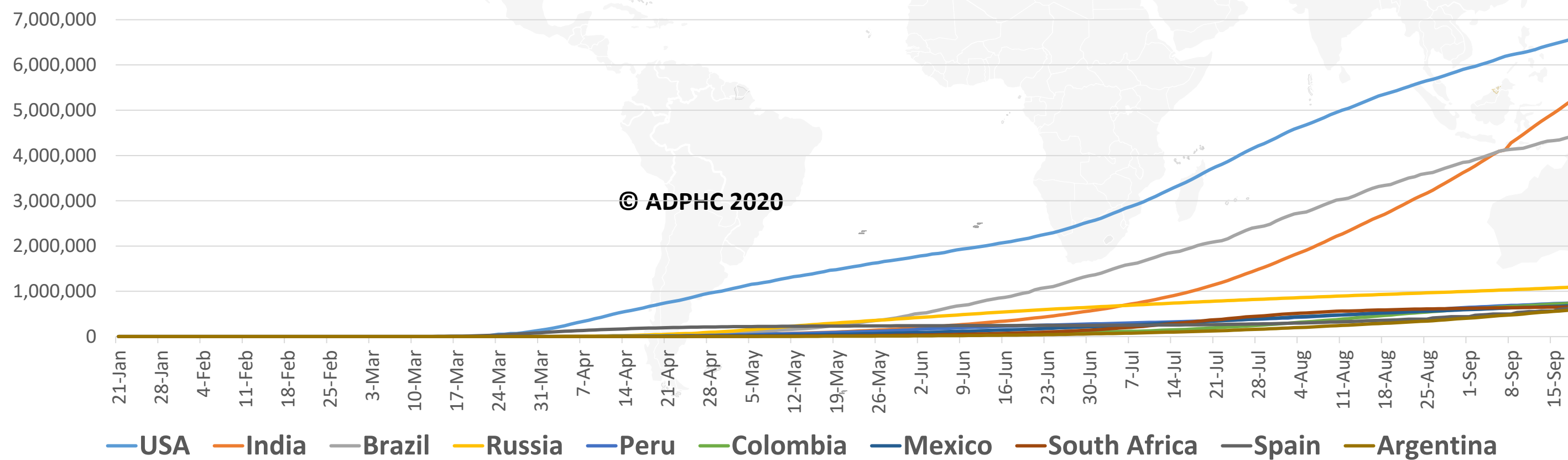
### TOTAL DEATHS



### DEATHS PER MILLION

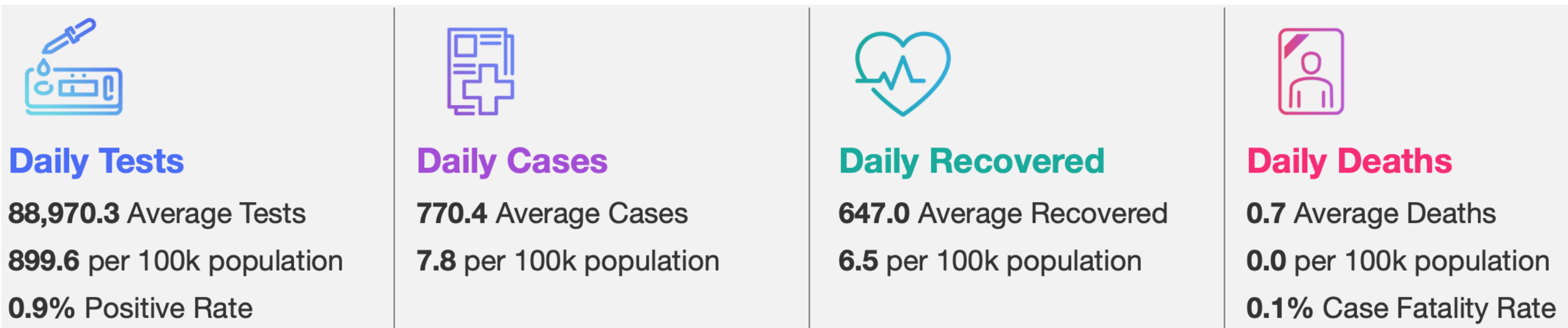


### TOTAL INFECTED CASES

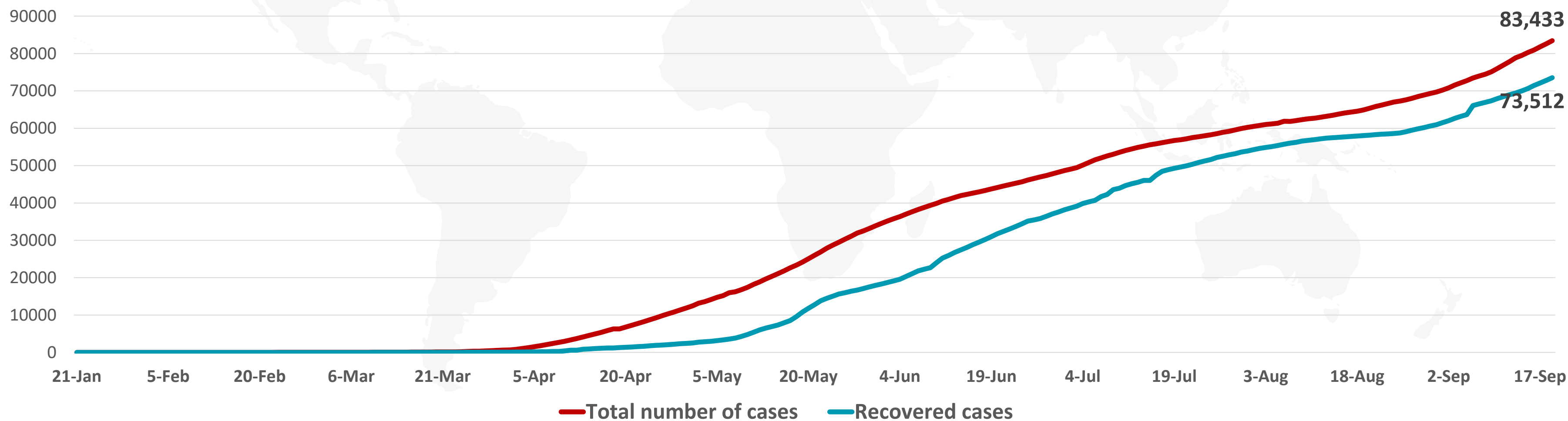


USA	6,613,737
Brazil	5,308,014
India	4,455,386
Russia	1,097,251
Peru	750,098
Colombia	743,945
Mexico	684,113
South Africa	657,627
Spain	640,040
Argentina	601,713

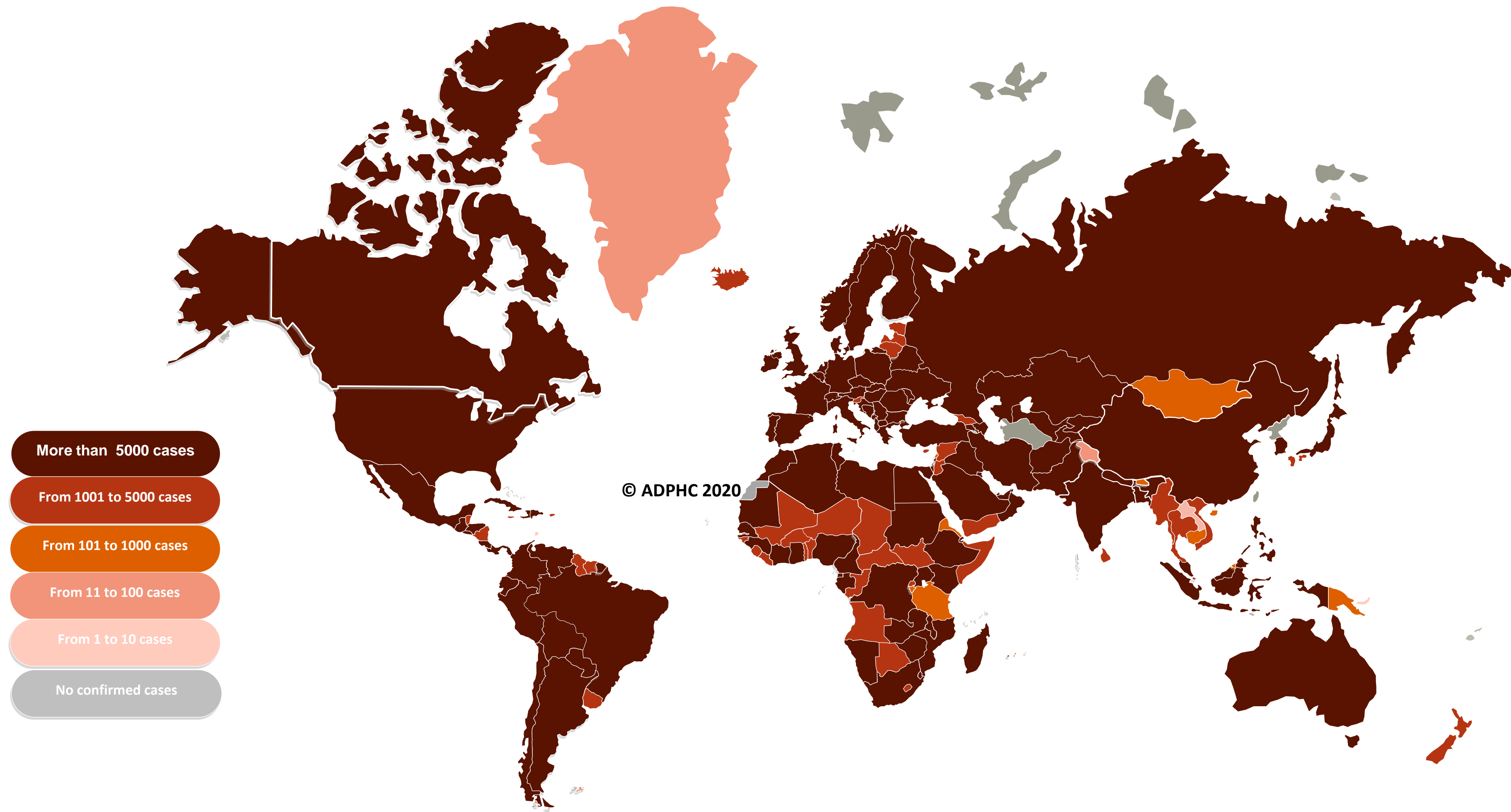
**Figure 6: COVID-19 Status in the UAE** (Federal Competitiveness and Statistics Authority Dashboard)



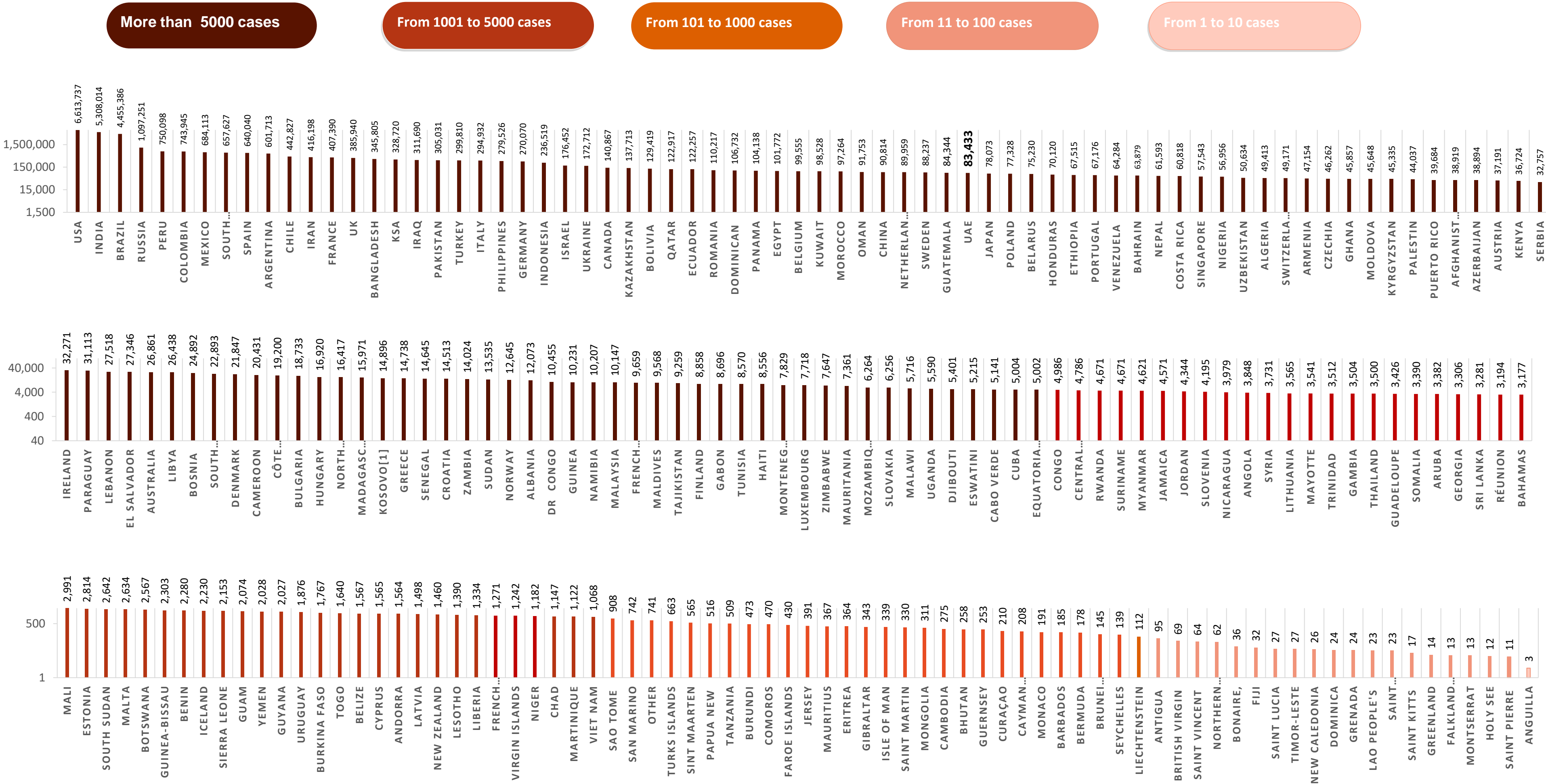
## TOTAL NUMBER OF INFECTED AND RECOVERED CASES DUE TO COVID-19 REPORTED BY THE UAE



## Figure 7A : Global Distribution of COVID-19 Cases



## Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases

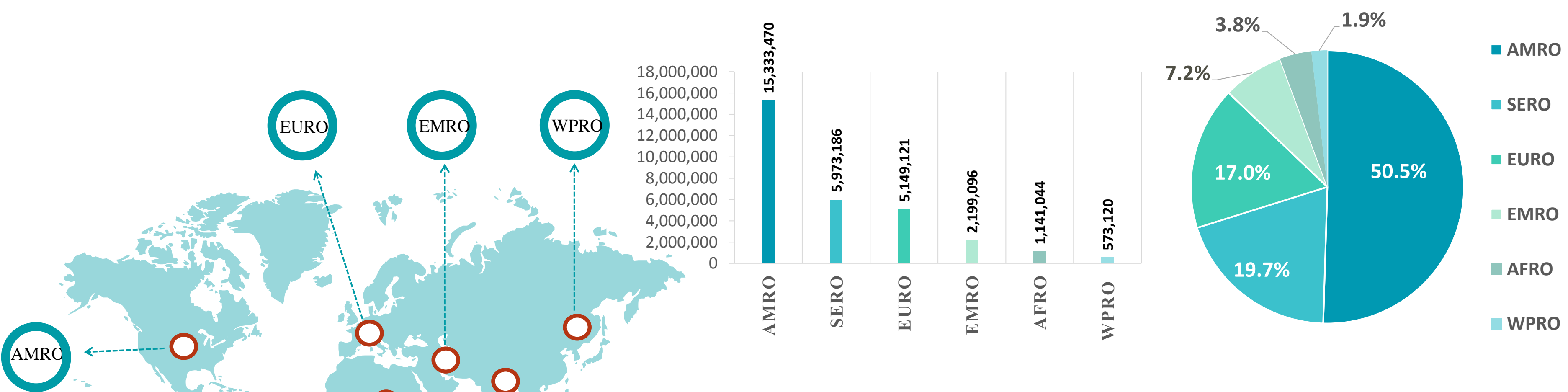


Other\*: includes cases and deaths reported under the international conveyance(Diamond Princess)

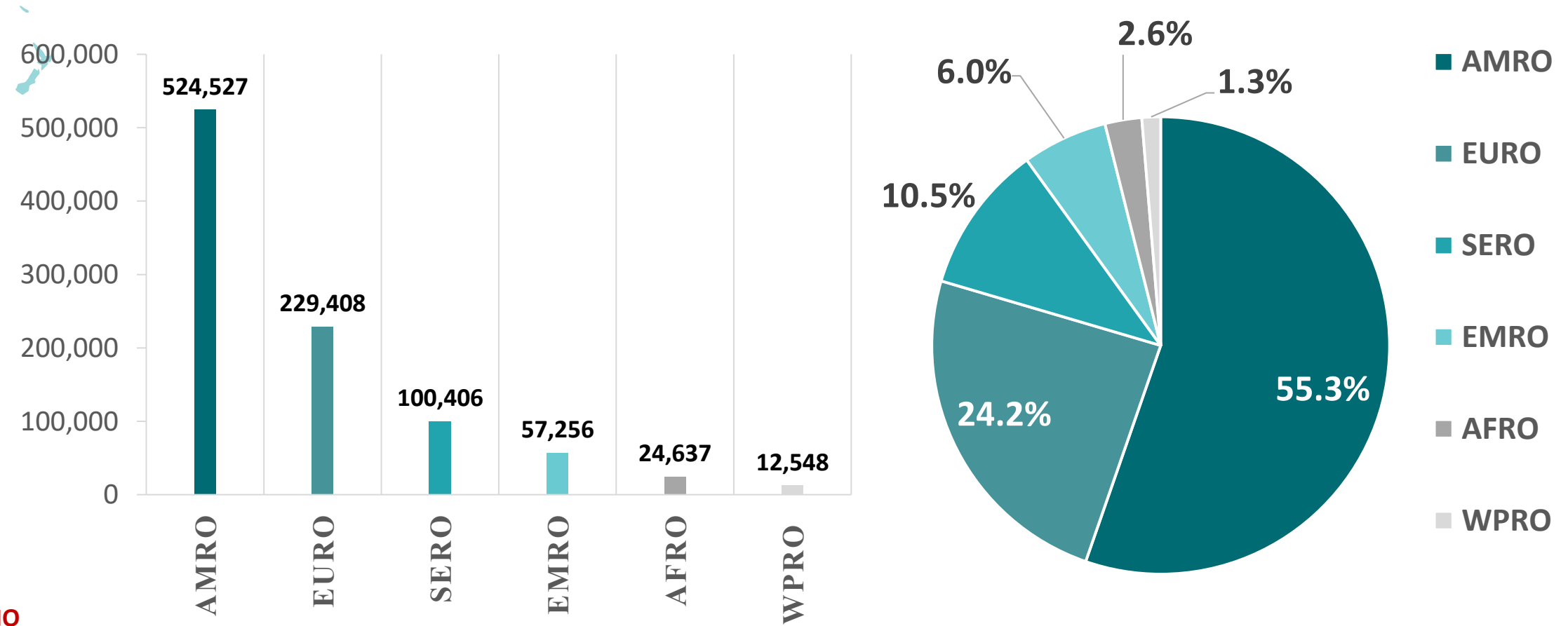


Figure 8: Global Distribution of COVID-19 Cases per Region

## INFECTED

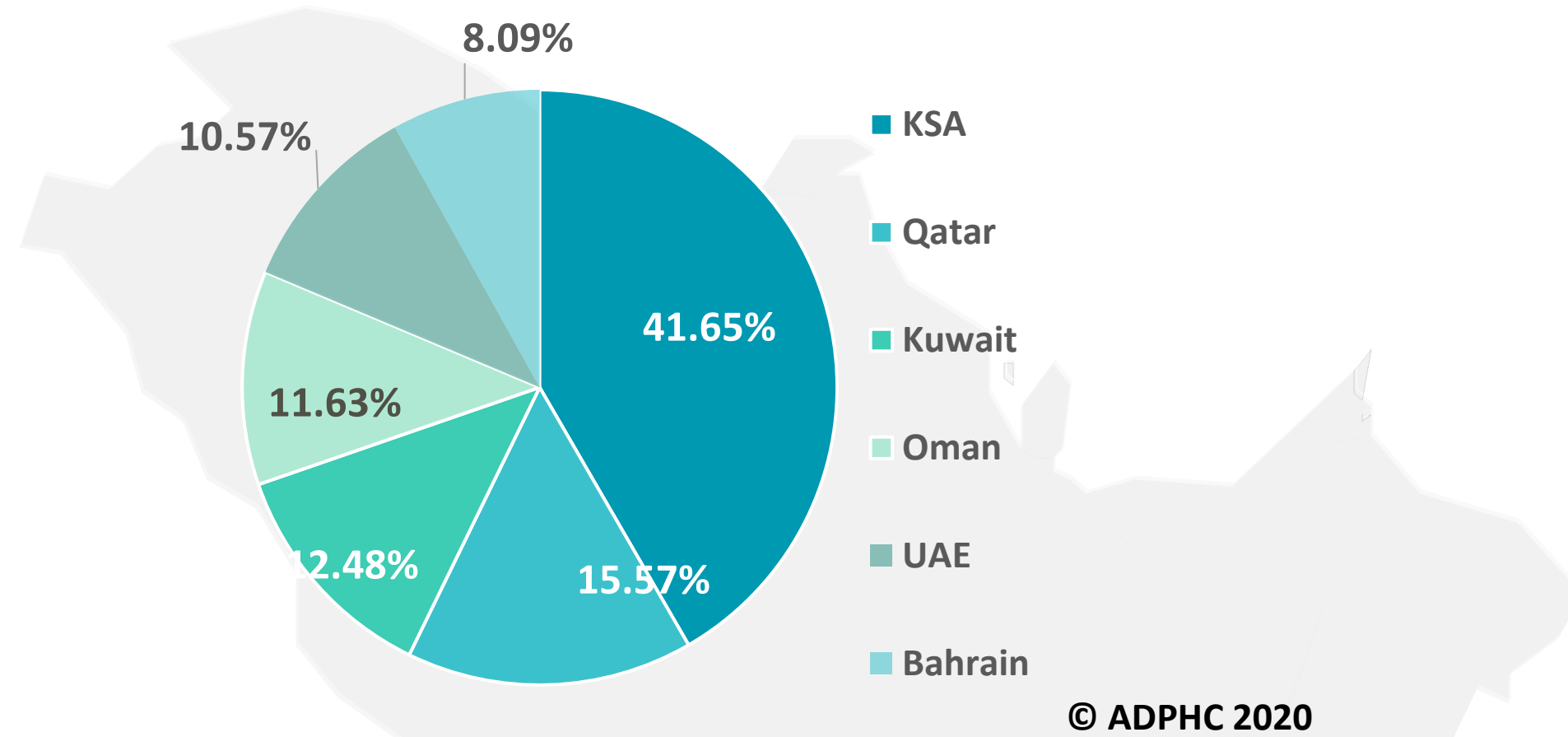


## DEATHS

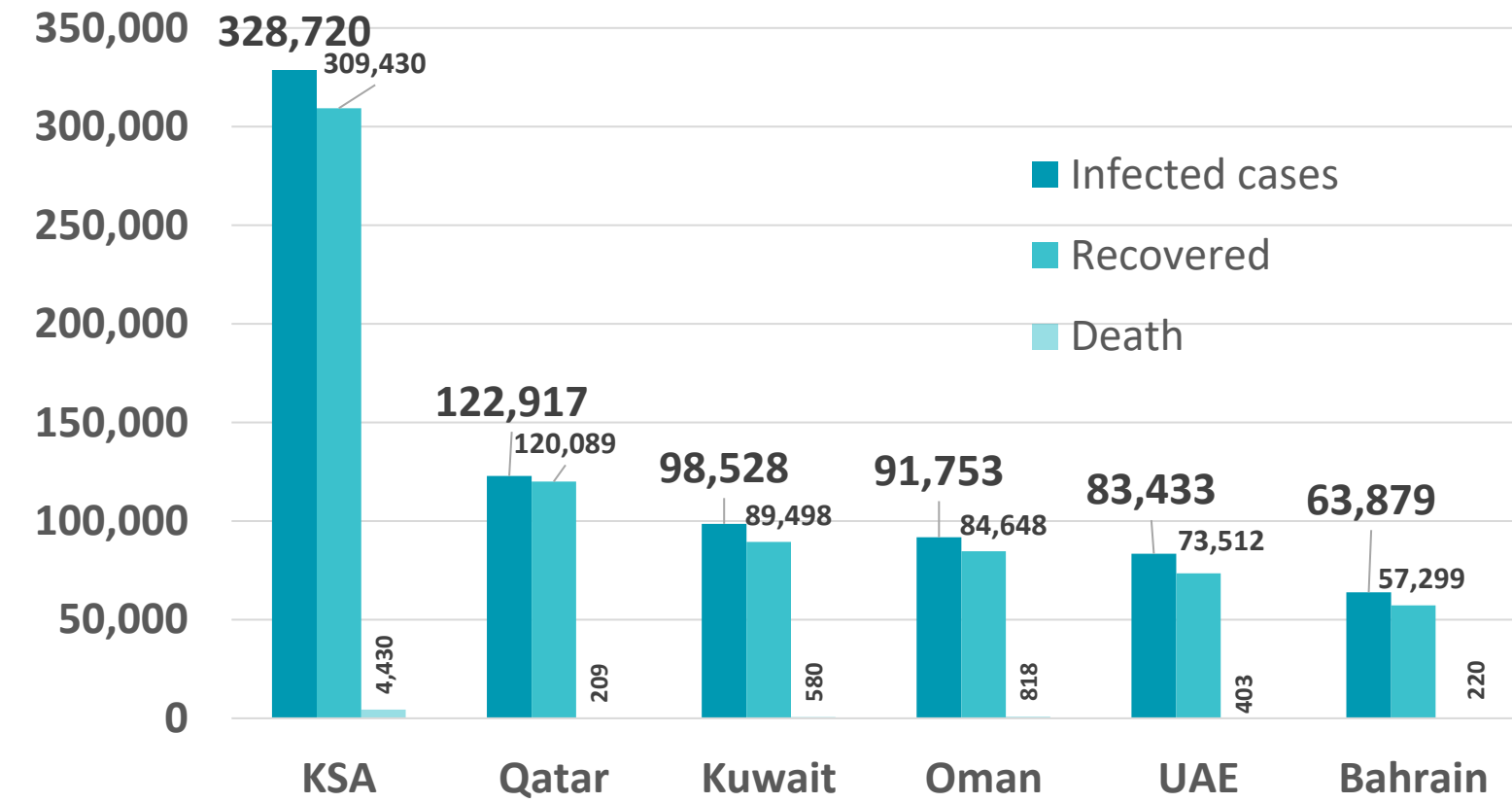


## Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

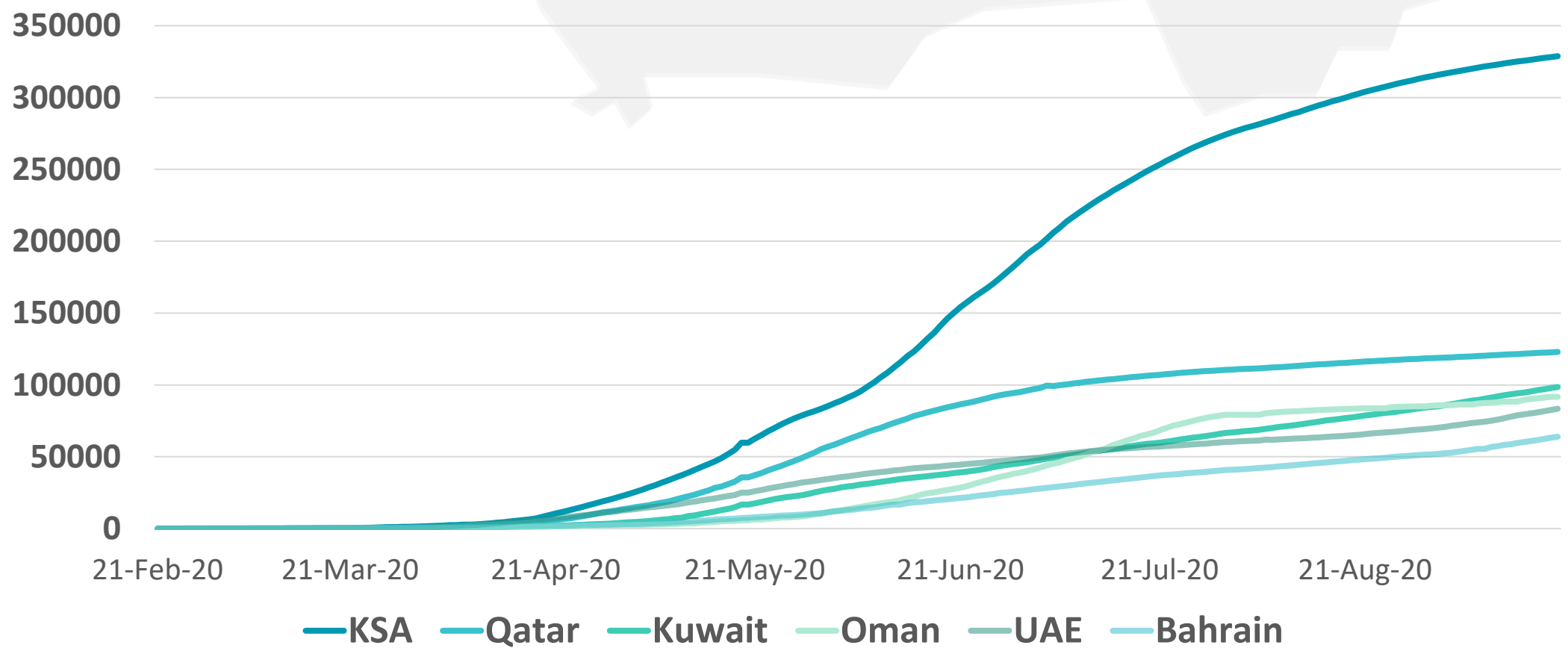
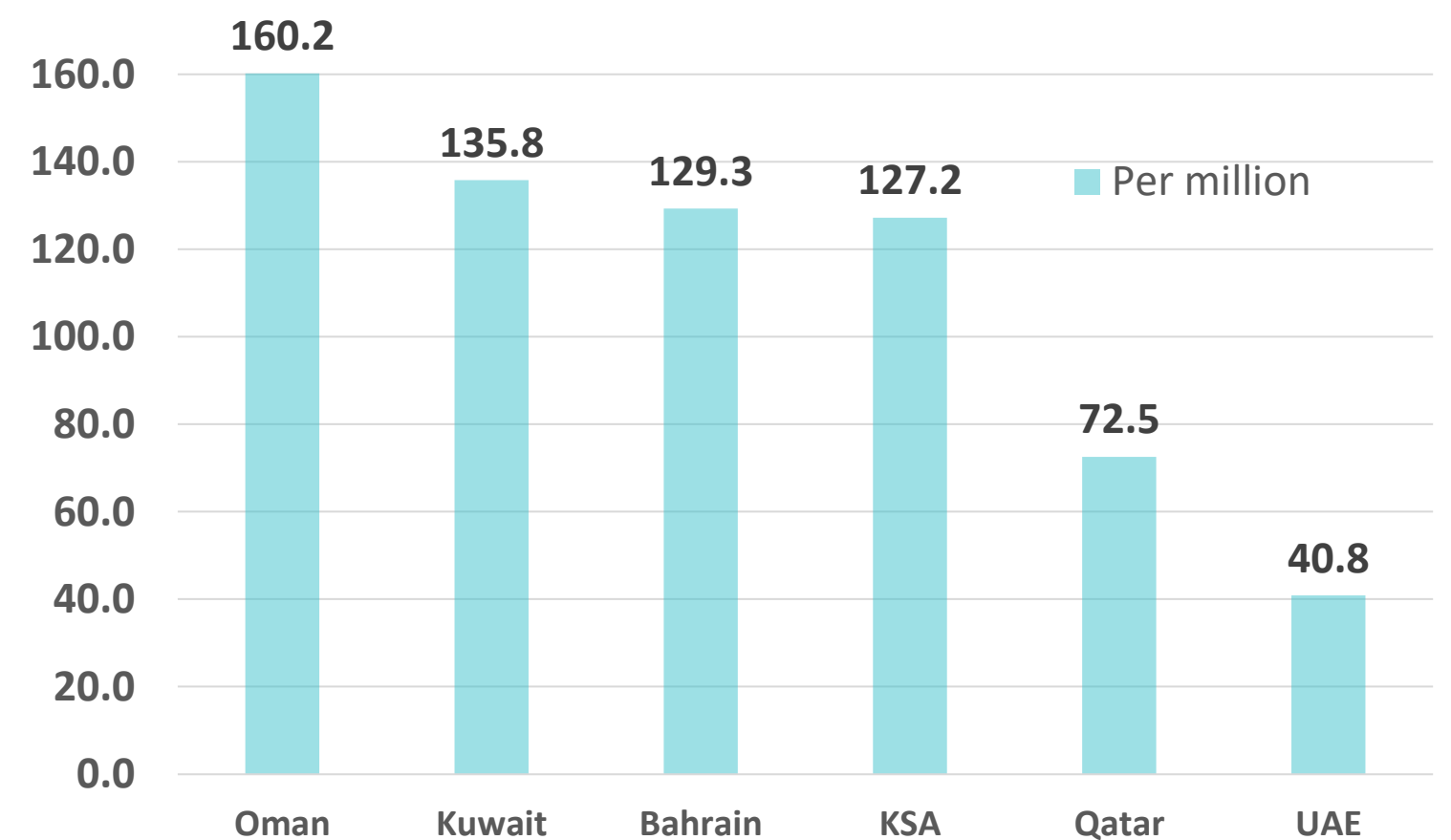
### TOTAL NUMBER OF INFECTED CASES



### TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



### DEATHS PER MILLION



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

**Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries**

## UAE



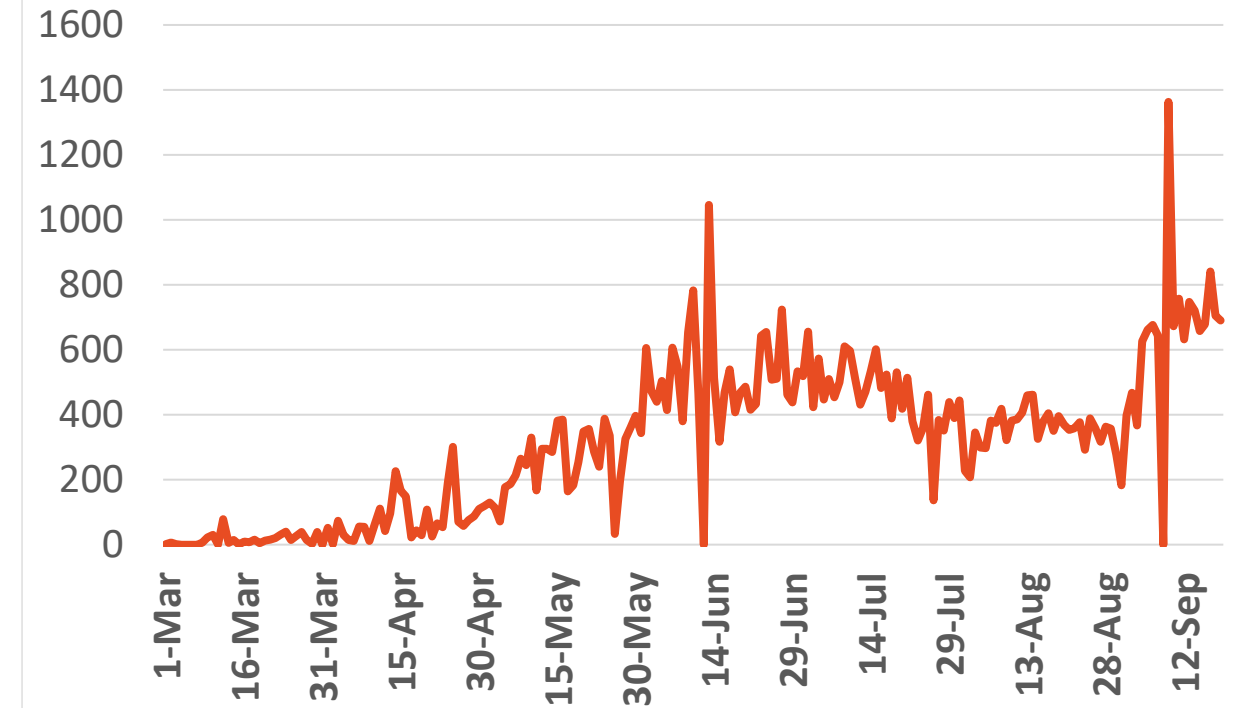
Source : National Emergency Crisis and Disaster Management Authority

## KSA



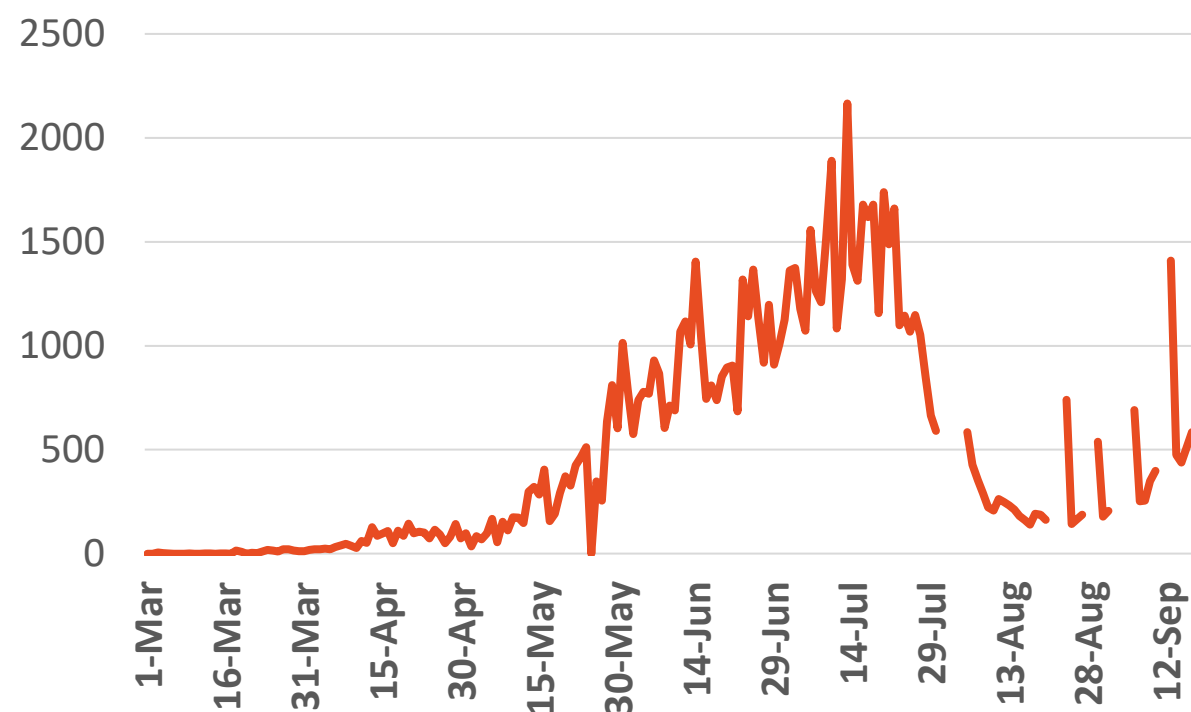
Source : KSA ministry of health

## Bahrain



Source :WHO

## Oman

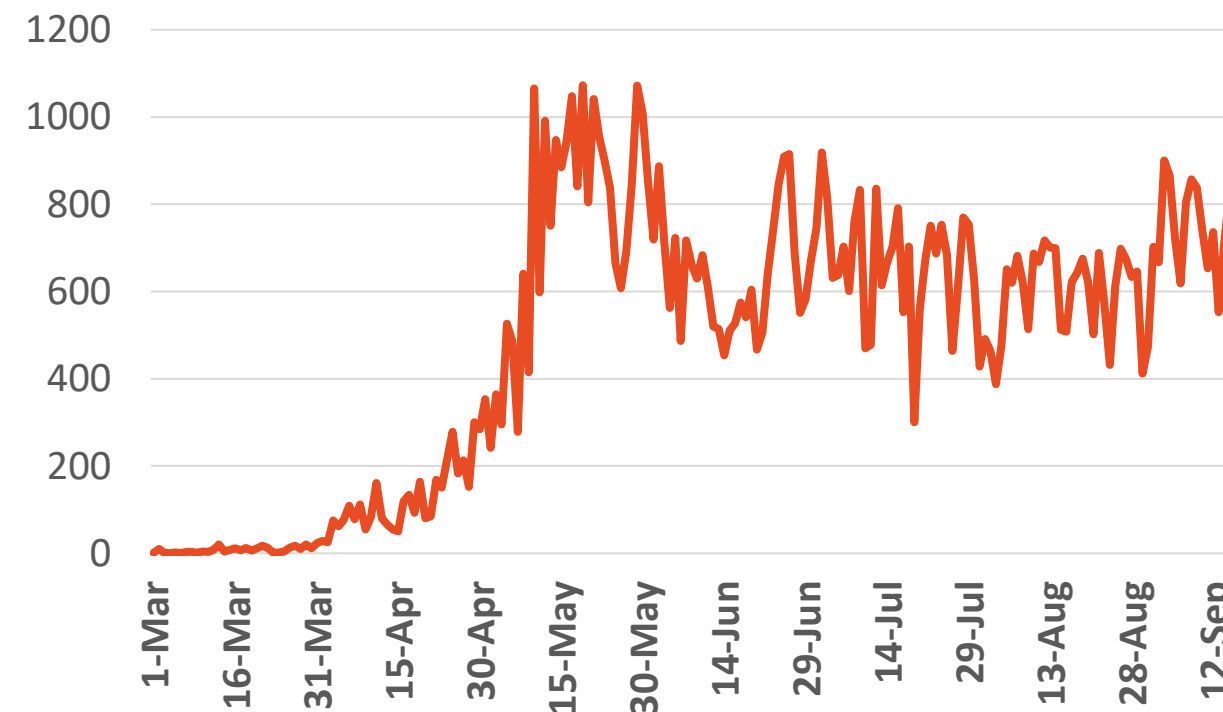


Source :Oman ministry of health

\*No announced statistic data from 31 July to 4 August, 21,23,28,30 August, 2, 4, 5,11,12,18 & 19 September  
\*No announced statistic data on weekends and official holidays.

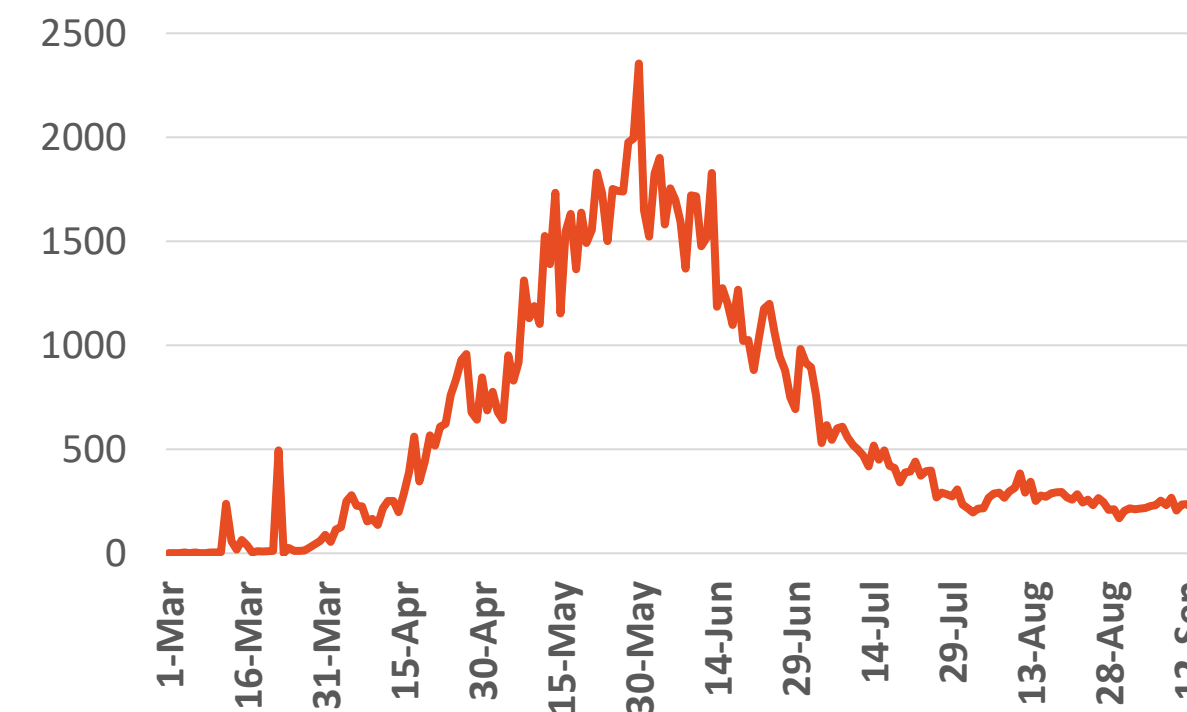
## Kuwait

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Source : Kuwait ministry of health

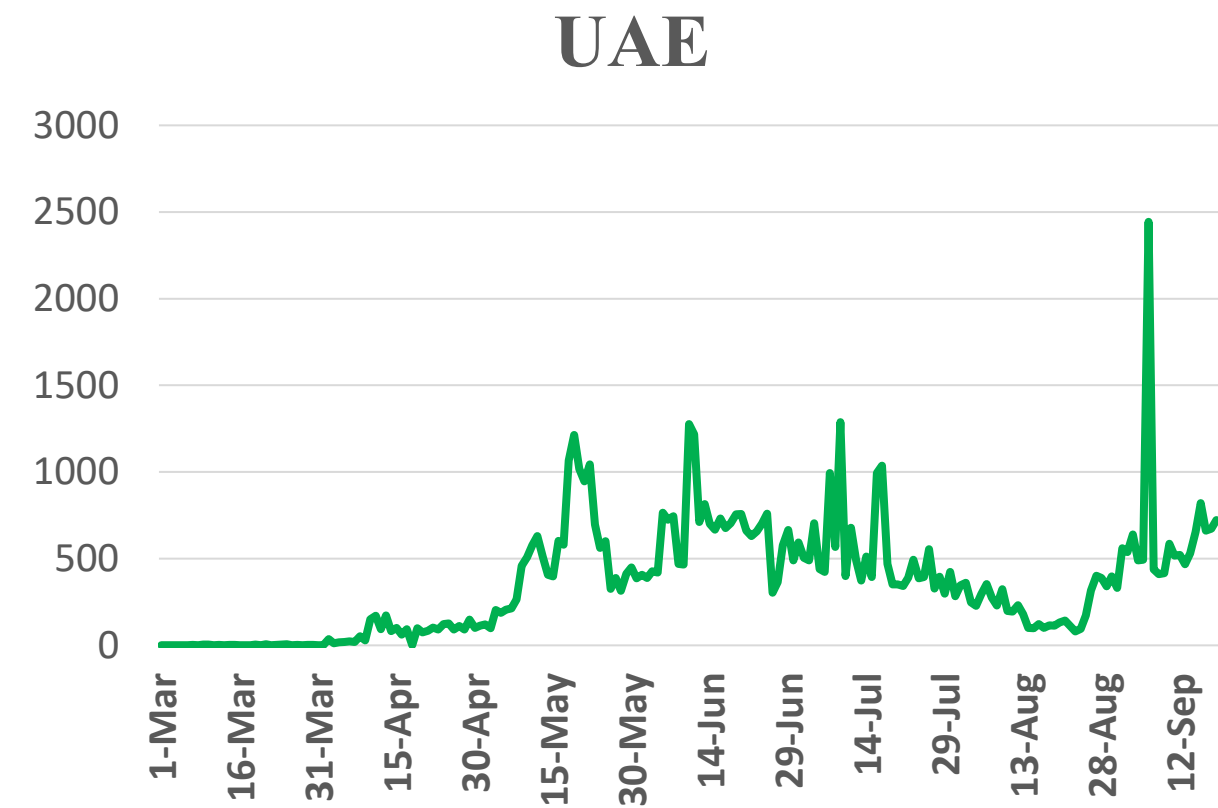
## Qatar



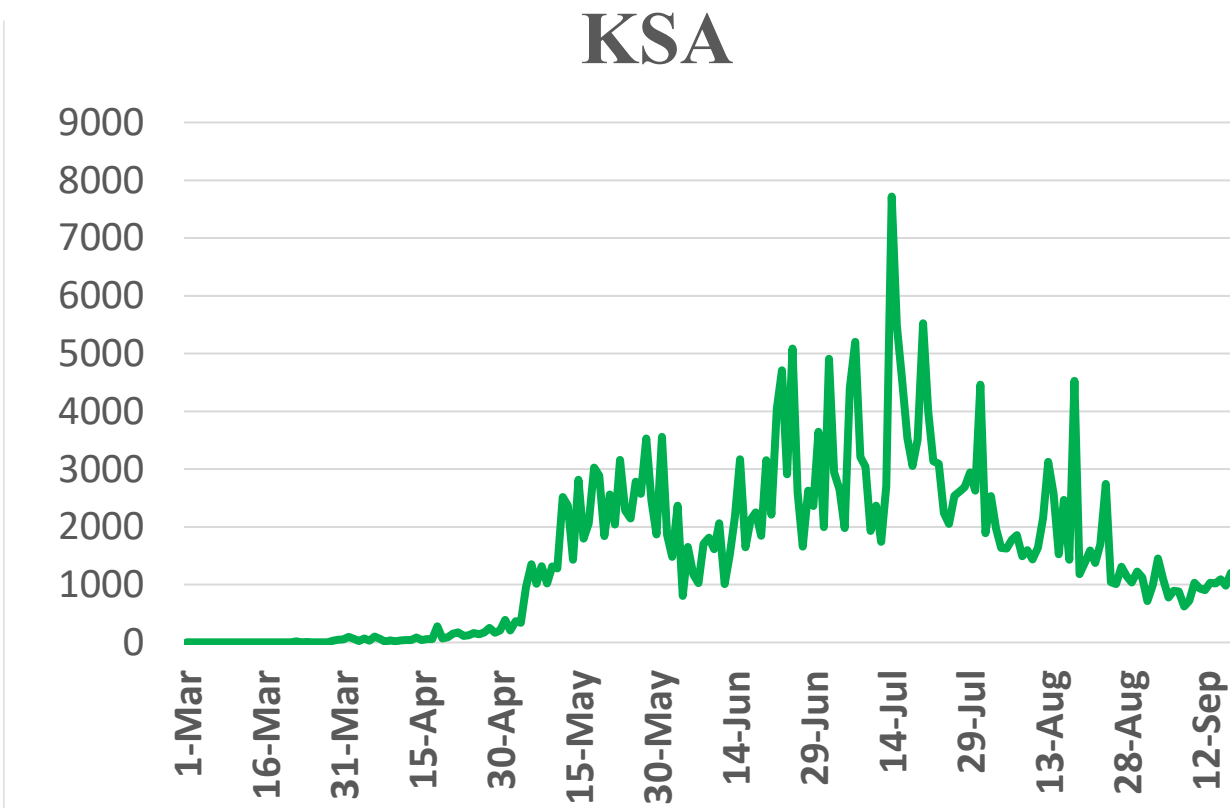
Source : Qatar ministry of health



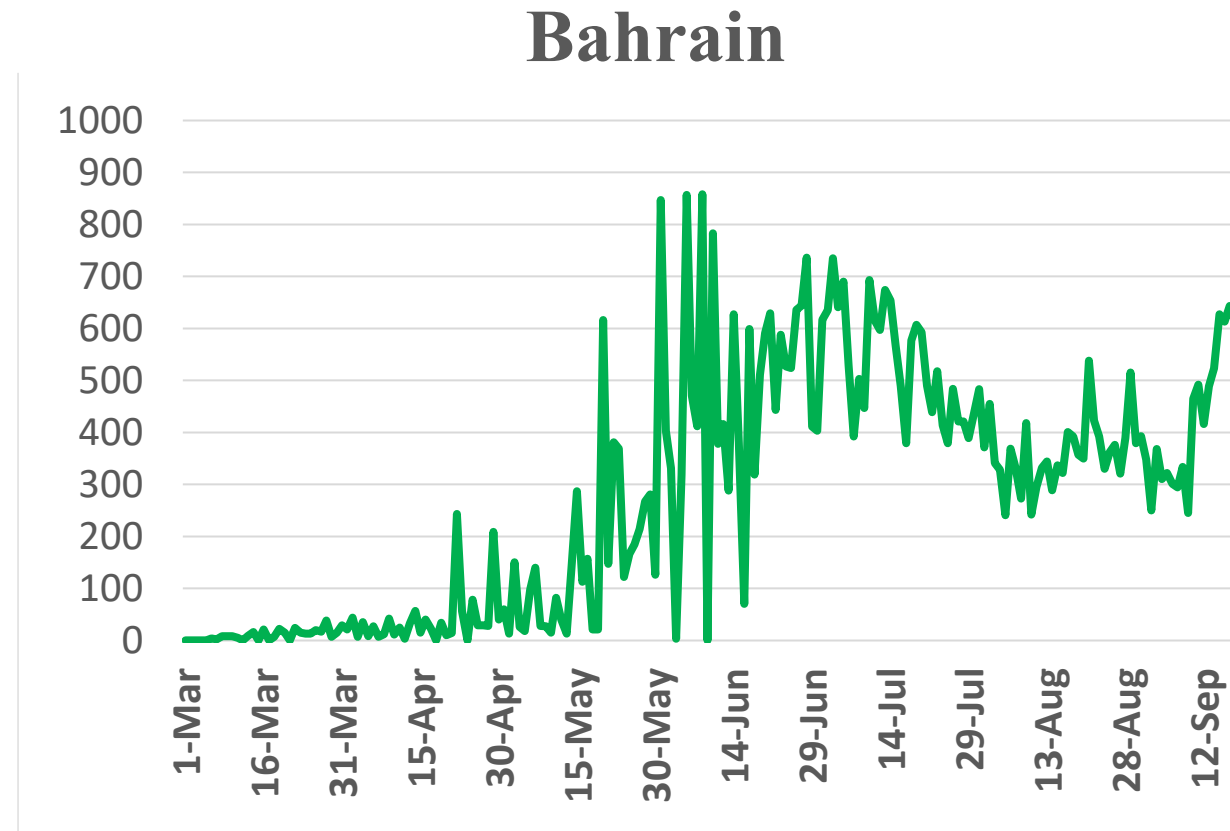
**Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries**



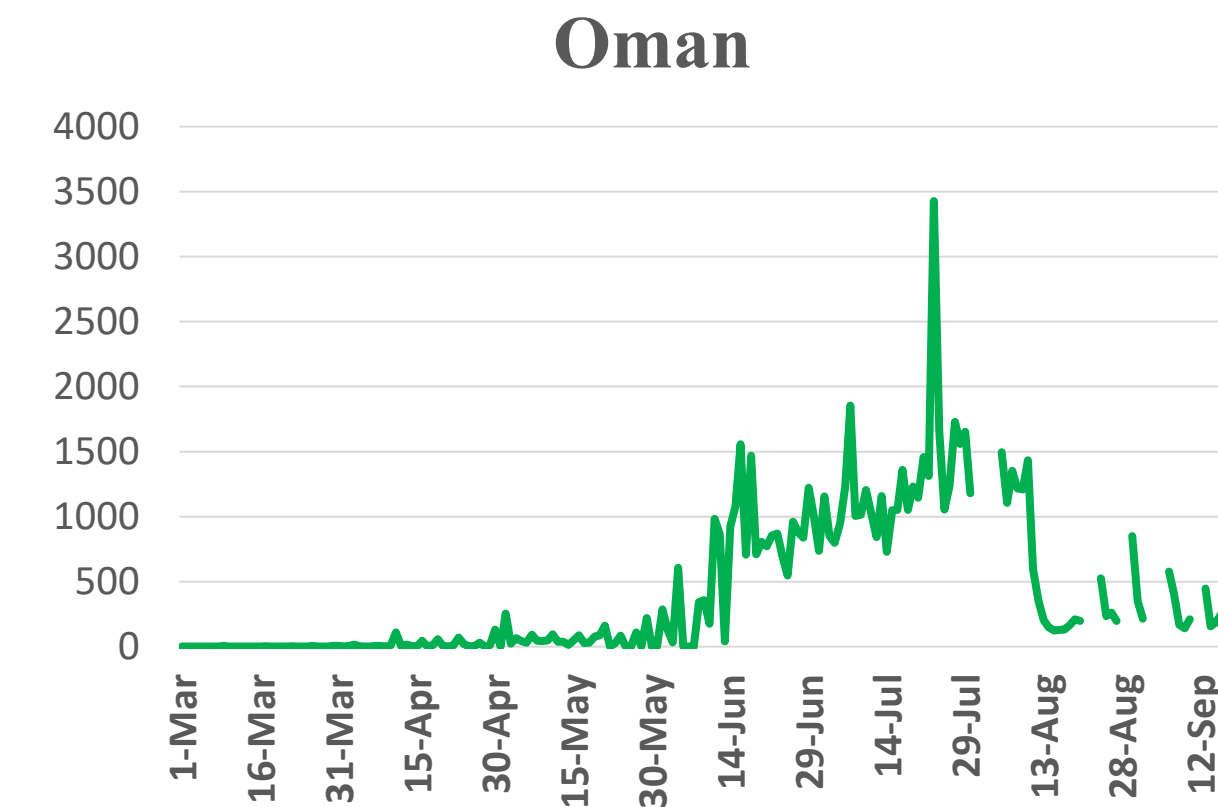
Source : National Emergency Crisis and Disaster Management Authority



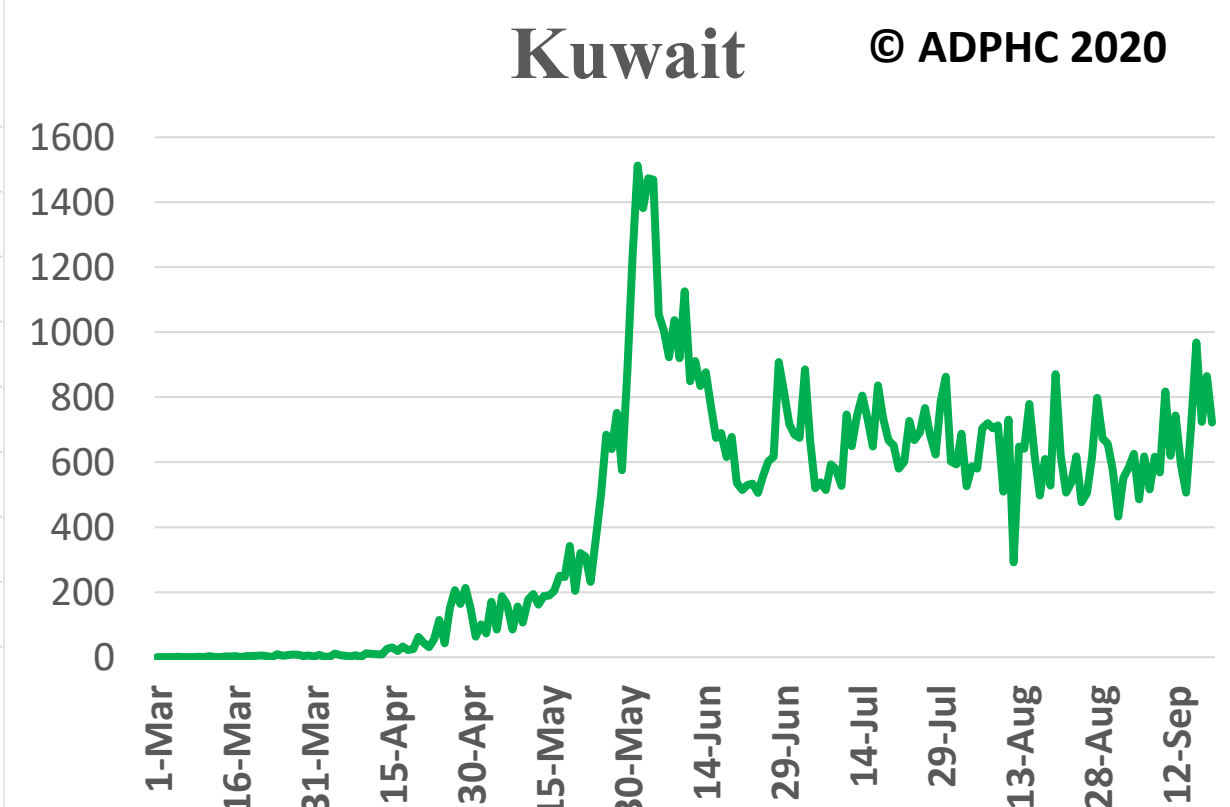
Source : KSA ministry of health



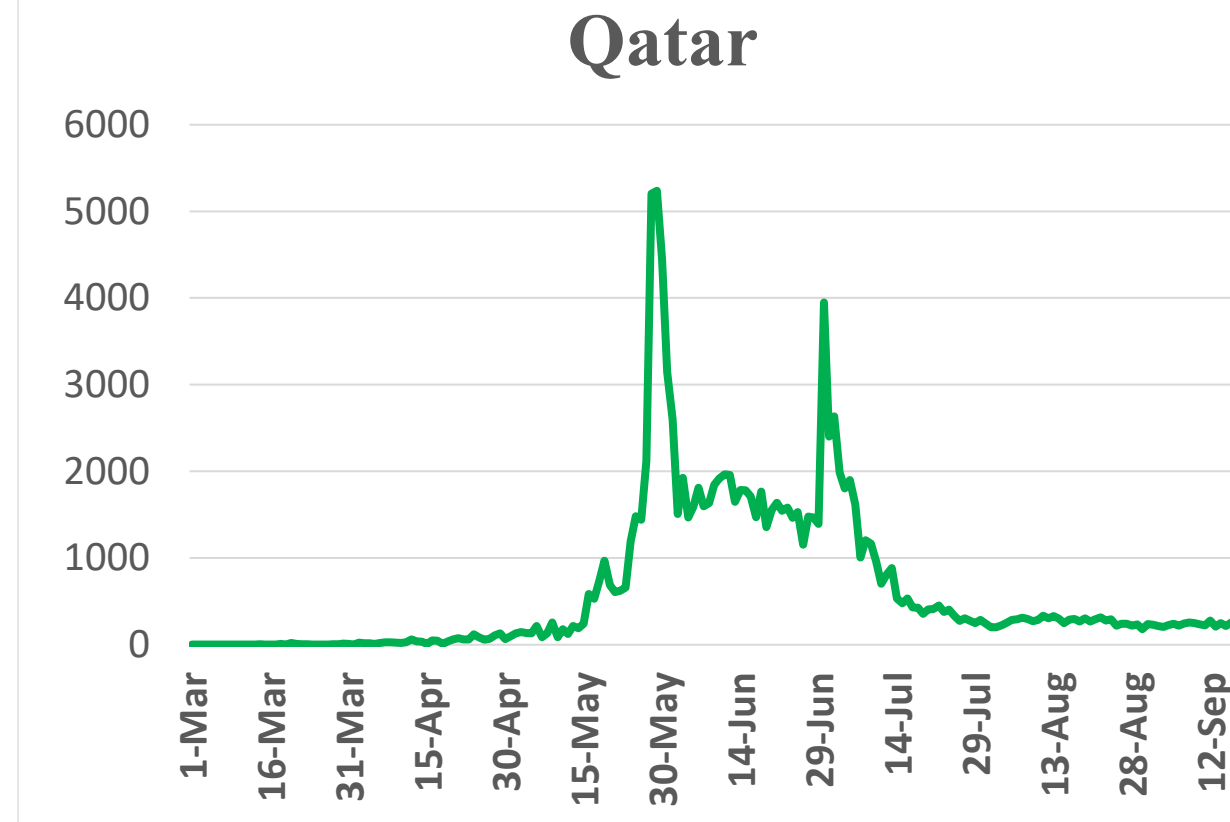
Source : Bahrain ministry of health



Source : Oman ministry of health



Source : Kuwait ministry of health



Source : Qatar ministry of health

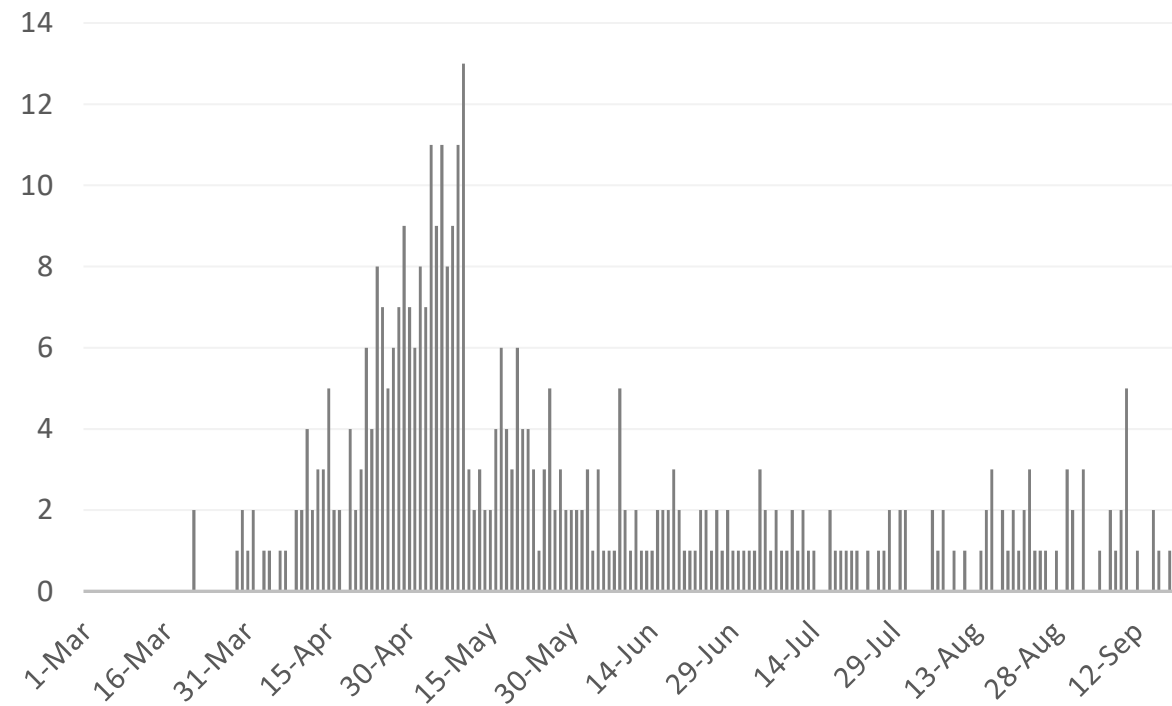
\*No announced statistic data from 31 July to 4 August, 21,23,28,30 August, 2, 4, 5,11,12,18 & 19 September

\*No announced statistic data on weekends and official holidays.



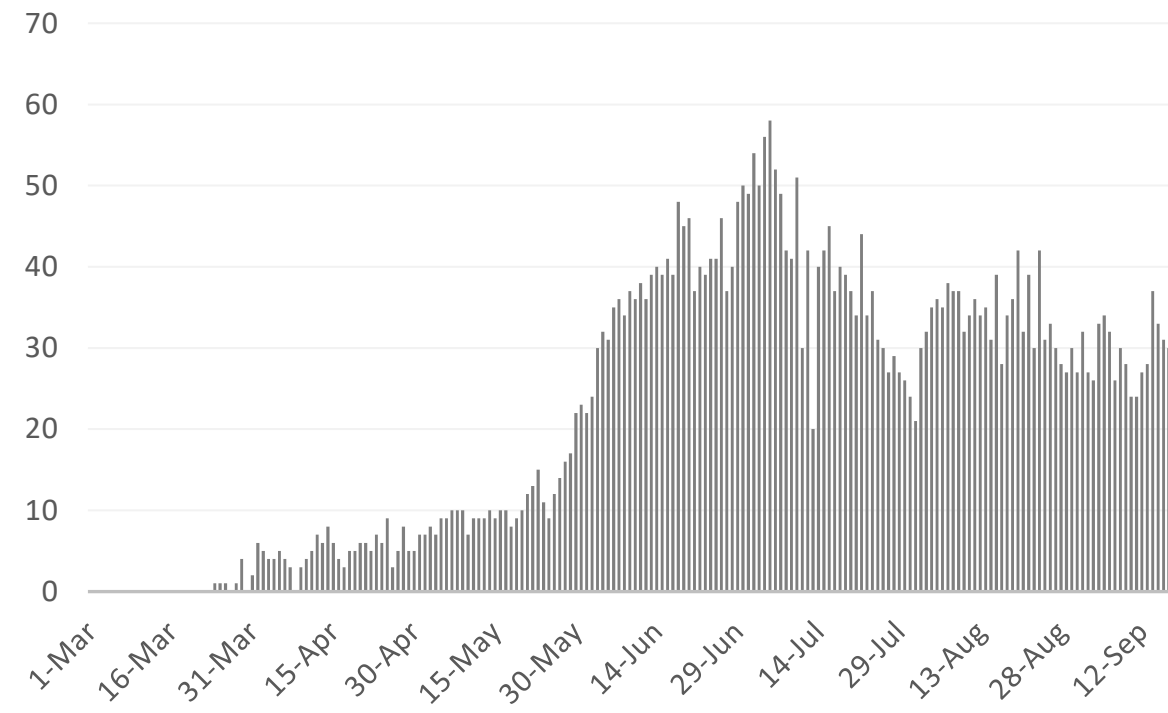
## Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

### UAE



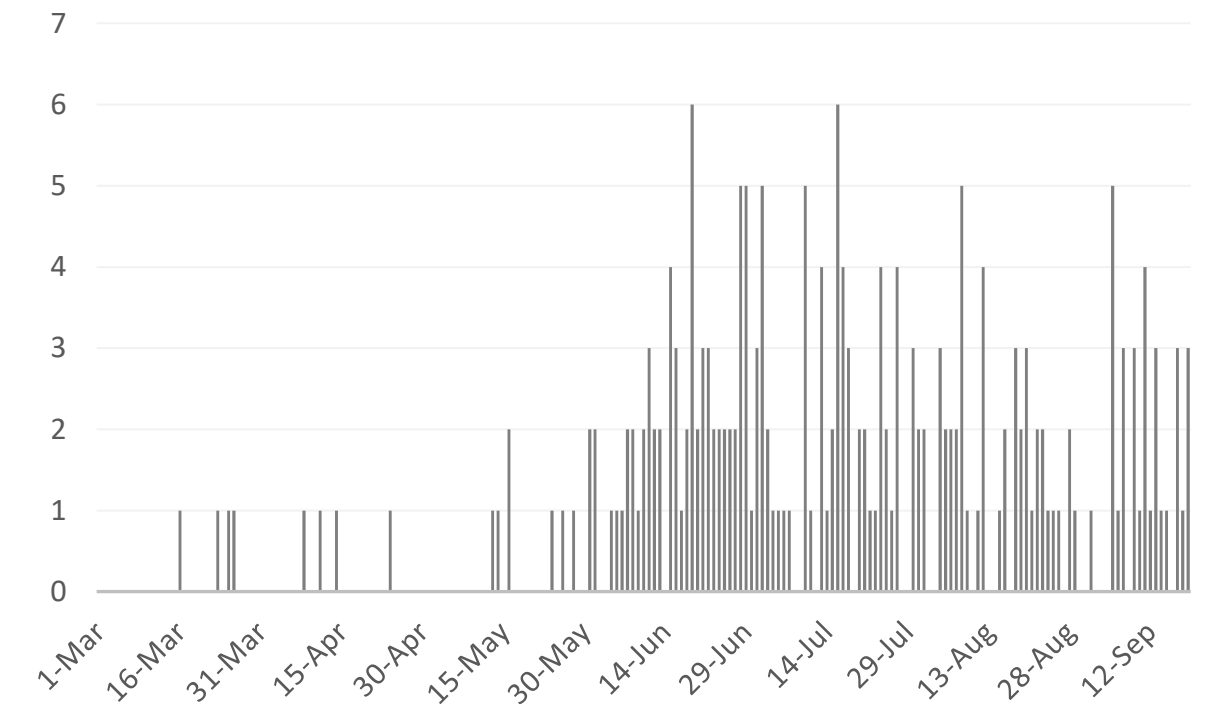
Source : National Emergency Crisis and Disaster Management Authority

### KSA



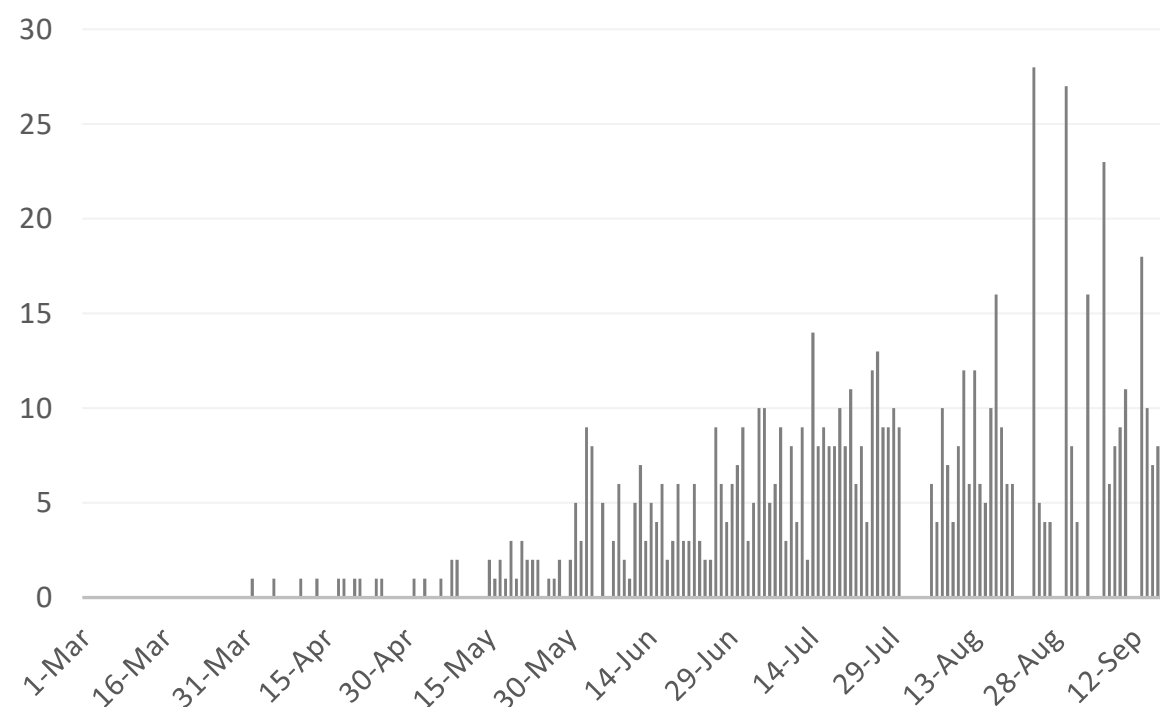
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman



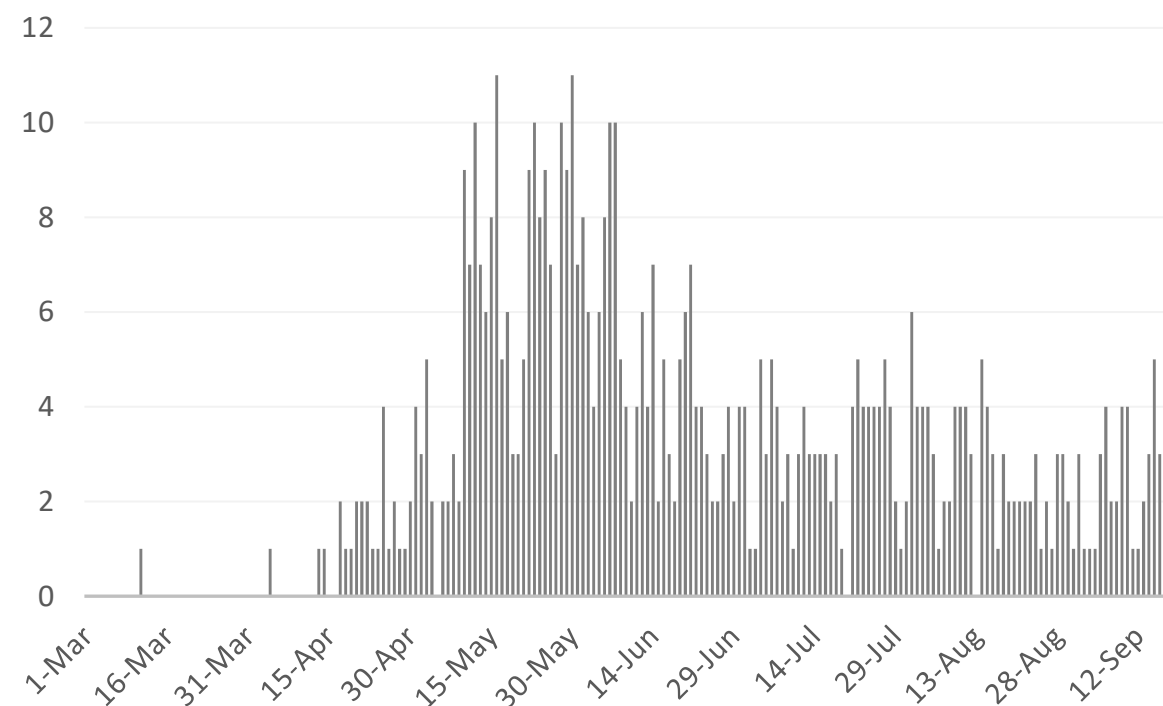
Source :Oman ministry of health

\*No announced statistic data from 31 July to 4 August, 21,23,28,30 August, 2, 4, 5,11,12,18 & 19 September

\*No announced statistic data on weekends and official holidays.

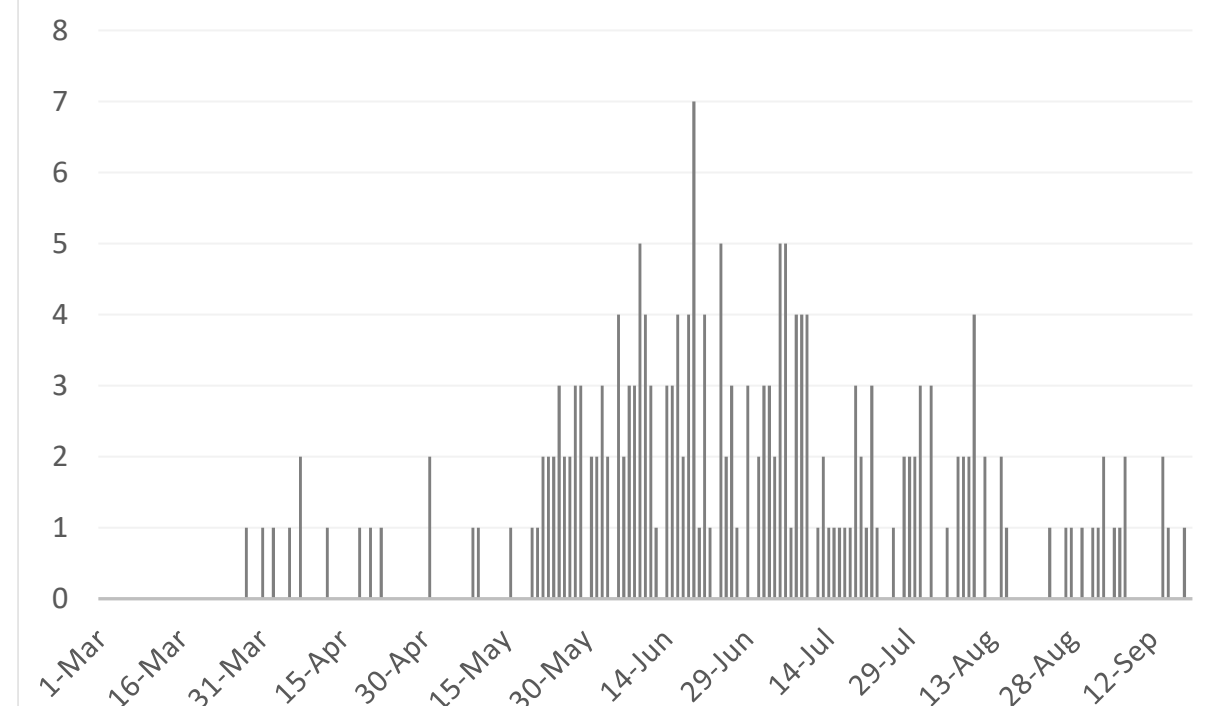
### Kuwait

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Source : Kuwait ministry of health

### Qatar



Source : Qatar ministry of health





# IMMUNOLOGY

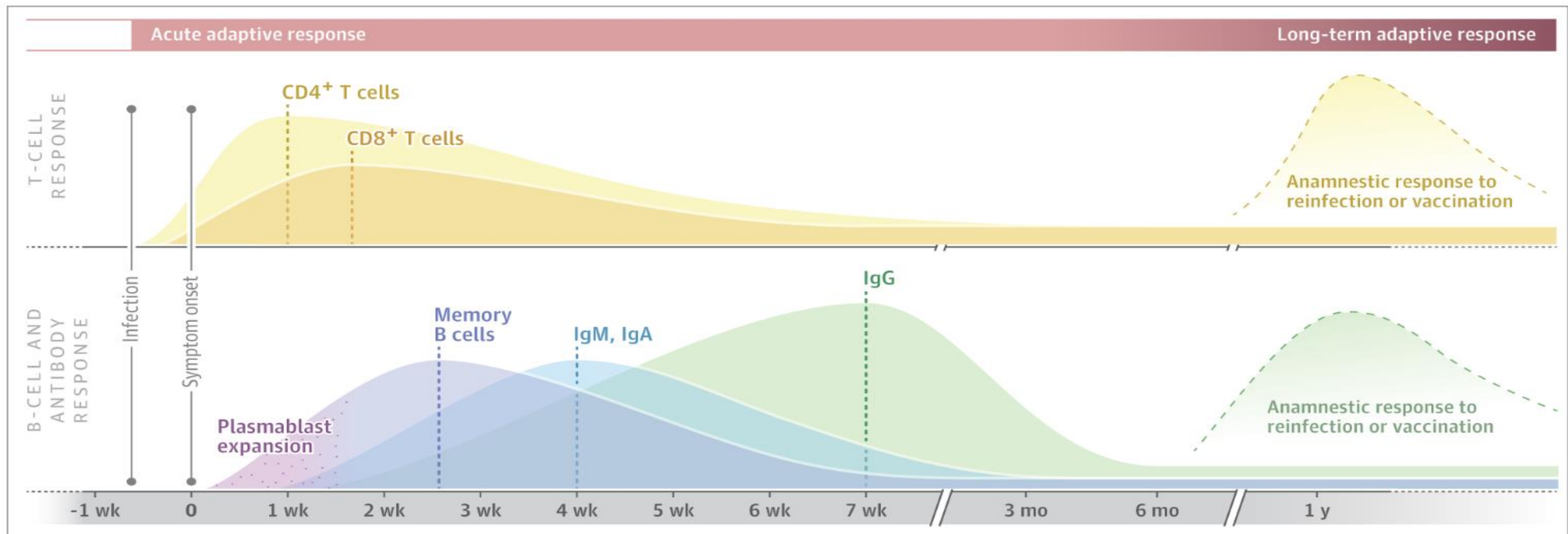
## Article 1

# COVID-19 and the Path to Immunity

Published

September 11, 2020 [JAMA](#)

- Memory B-cell and plasmablast expansion is detected during early stage in infection with secretion of IgM and IgA by day 5-7 and IgG by day 7-10 from the symptom onset. IgM and IgA titers decline approximately after 28 days, and IgG titers peak approximately at 49 days.
- At the same time, SARS-CoV-2 activates T-cells during the first week of infection and CD4<sup>+</sup> T and CD8<sup>+</sup> T-cells reportedly peak within two weeks but remain detectable at lower levels for  $\geq 100$  days of observation. It has been identified SARS-CoV-2 specific memory CD4<sup>+</sup> T-cells in up to 100% and CD8<sup>+</sup> T-cells in approximately 70% of patients recovering from COVID-19.





# PUBLIC HEALTH RESPONSE

## Article 2

# Bridging the Gap at Warp Speed — Delivering Options for Preventing and Treating Covid-19

Published

September 15, 2020 [THE NEJM](#)

- Operation Warp Speed (OWS), an effort of the U.S. Department of Health and Human Services, and the Department of Defense in partnership with the private sector aiming to provide financial investment, scientific support, regulatory expertise, and logistic assistance to deliver vaccines, therapeutics, and diagnostics for SARS-CoV-2 to the American public as quickly as possible. The article lists the efforts currently presumed by OWS to achieve their goals.

**Table: The ongoing efforts by OWS in delivering options for preventing and treating covid-19**

Therapeutic Inhibiting Viral Replication	
Therapeutics that attack the virus	<ul style="list-style-type: none"> <li>The current focus is on repurposing drugs which were developed for Ebola or other virus but may be effective against SARS-CoV-2.</li> <li>Many candidates are being evaluated using master protocols developed by the ACTIV program, which permit efficacy comparisons among therapies, spare patients by using shared control groups and can accommodate various types of interventions.</li> <li>Currently they are also evaluating small molecule antivirals, including a nucleoside analogue, EIDD-2801 (MK-4482), developed in a collaboration between Ridgeback Biotherapeutics and Merck, as a potential inhibitor of SARS-CoV-2 replication.</li> </ul>
Immune Modulator	
Immune-Modulator	<ul style="list-style-type: none"> <li>Tracking studies of immunomodulators in patients with Covid-19 are currently studied in the ACTIV-1 trial of immunomodulators.</li> </ul>



## Continued

<b>Therapeutic Providing Passive Immunity</b>	
Neutralizing Monoclonal Antibodies	<ul style="list-style-type: none"> <li>• Early investment on antibody discovery platform lead to the isolation of highly potent neutralizing mAbs and move it to phase 1 safety testing within 90 days after sample receipt.</li> <li>• Neutralizing mAbs will also be tested as prophylaxis in high-risk cohorts, such</li> <li>• as residents and caregivers at long-term care facilities, employees at meat-packing plants where infection has been detected, or households with confirmed Covid-19 cases.</li> <li>• There are more than three monoclonal AB under the development. One example is a mAb product discovered by AbCellera Biologics and developed by Eli Lilly is currently in ACTIV-2 and ACTIV-3 trials.</li> <li>• Also two mAbs developed by AstraZeneca (licensed from Vanderbilt University) and engineered to have an extended half-life could be particularly useful for prophylaxis</li> </ul>
Hyper Immunoglobulin	<ul style="list-style-type: none"> <li>• A one product of hyperimmune globulin is developed by Sab Biotherapeutics, derived from genetically altered cows that produce human IgG.</li> <li>• A phase 1 clinical safety study of the processed hyperimmune globulin from these cows</li> <li>• began in August and evaluation in the ACTIV-2 master protocol is anticipated.</li> </ul>
Convalescent Plasma	<ul style="list-style-type: none"> <li>• In April 2020, the FDA and clinical partners announced an Expanded Access Protocol for the administration of convalescent plasma.</li> </ul>
<b>Anticoagulant</b>	
Anticoagulant	<ul style="list-style-type: none"> <li>• Anticoagulation regimens at different points in disease are currently evaluated in. ACTIV-4 trial</li> </ul>





# THANK YOU

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