

# SCIENTIFIC RESEARCH MONITORING ON COVID-19

19 SEPTEMBER 2020

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# SCIENTIFIC RESEARCH MONITORING ON COVID-19

## (ISSUE 230)

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**  
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**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.

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

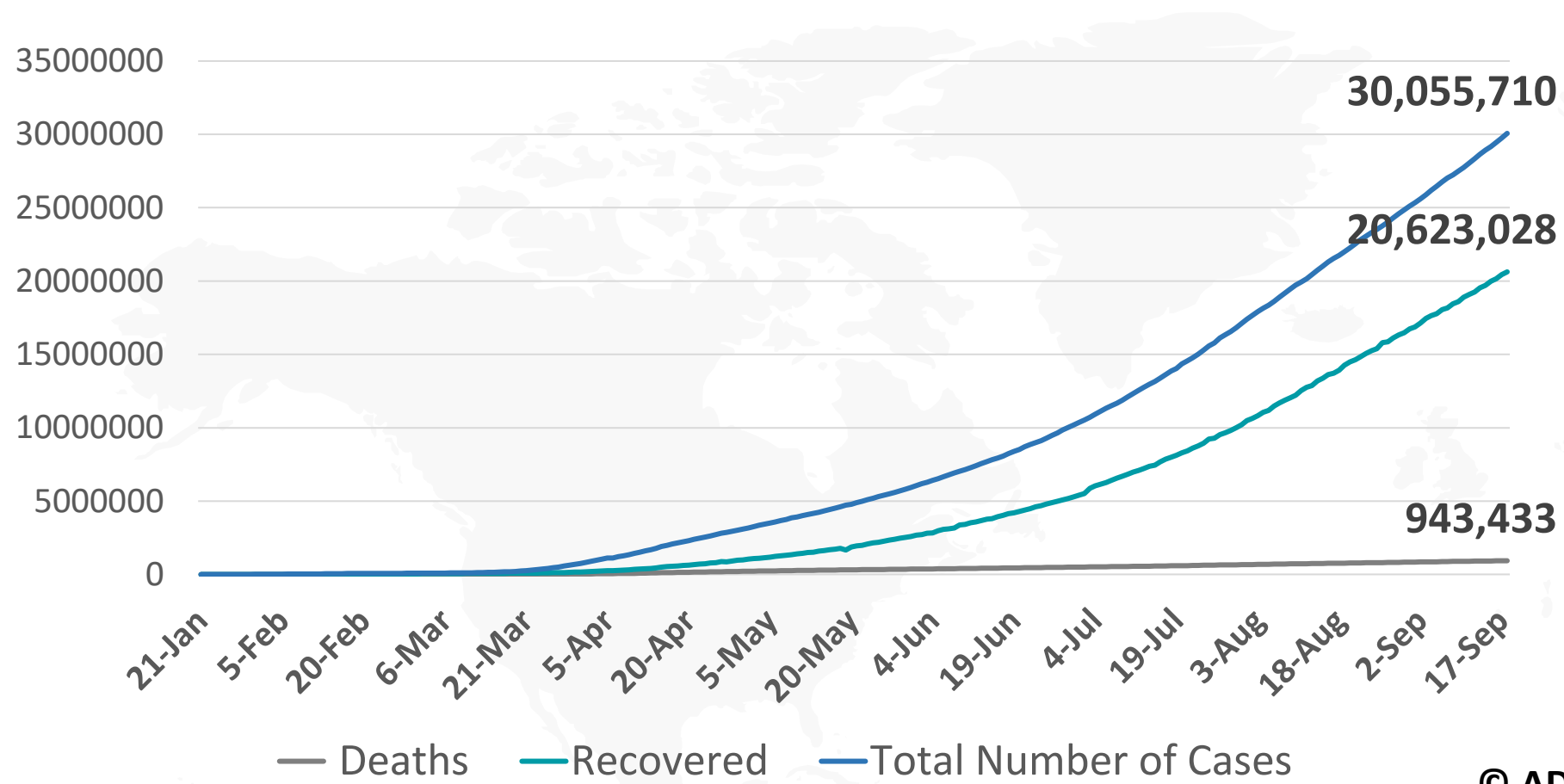
COVID-19 Herd Immunity:  
Where Are We?

## Public Health Response

Prevalence of Third-Party  
Tracking on COVID-19  
Related Web Pages

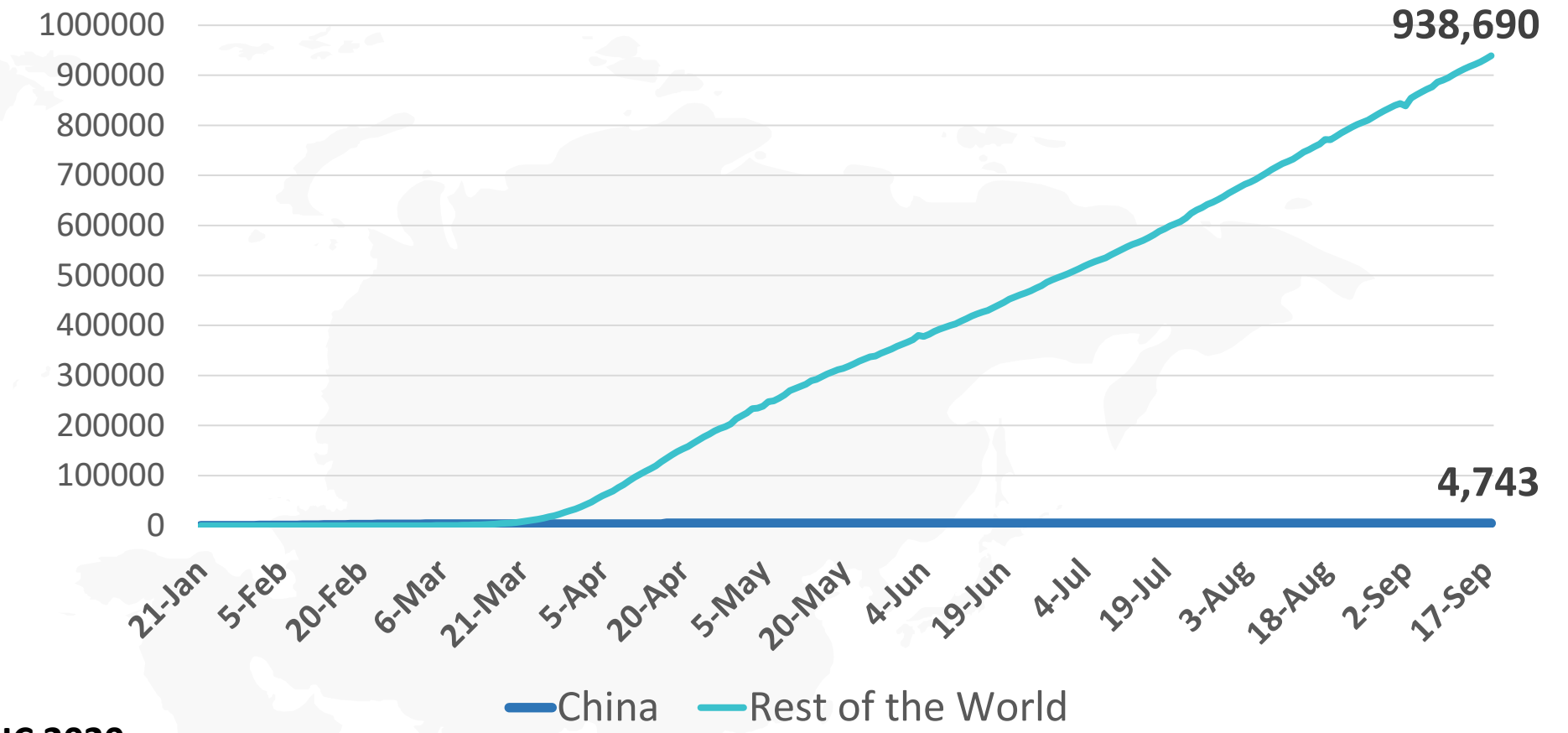


**Figure 1: Total Number of Infected, Recovered, and Death Cases**

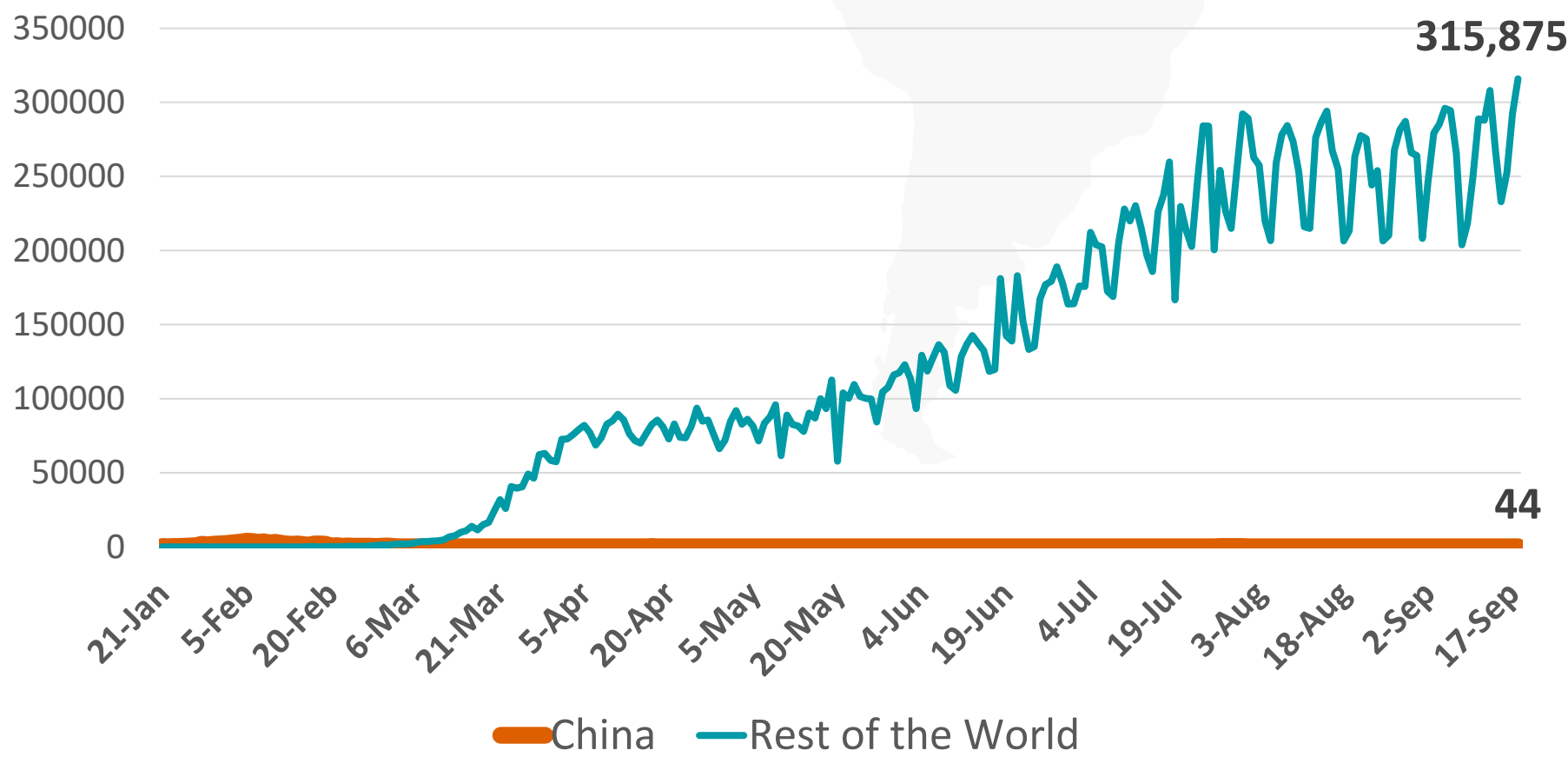


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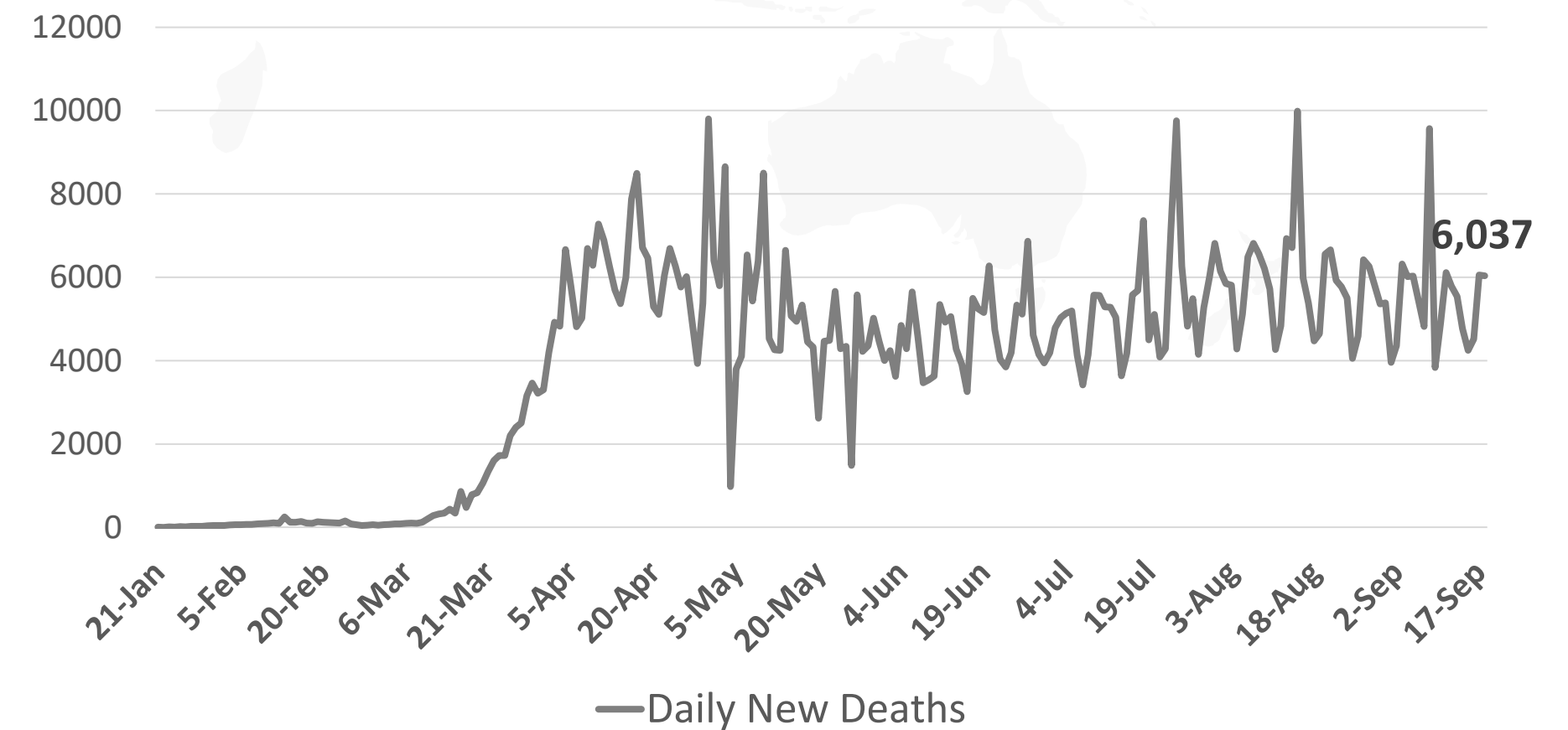
**Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)**



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

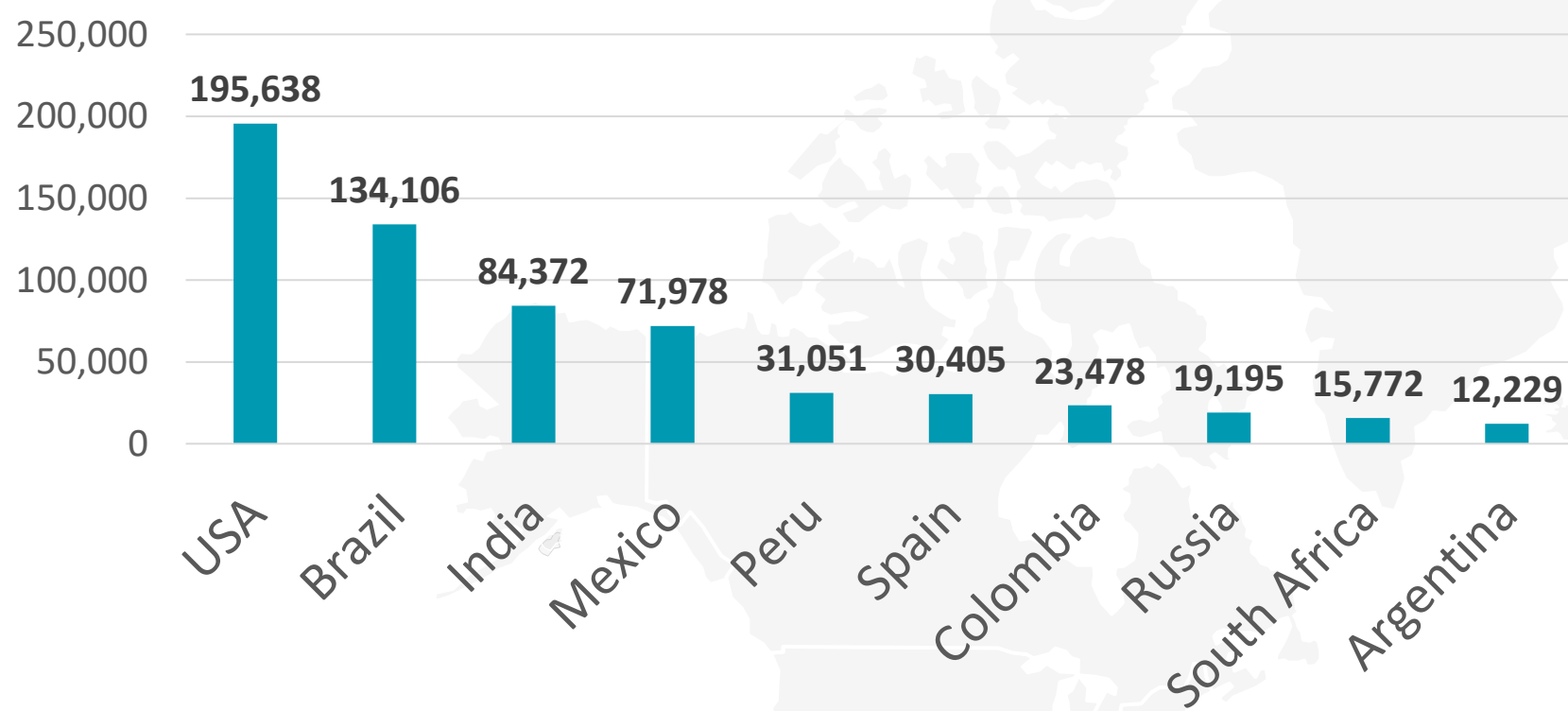


**Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)**

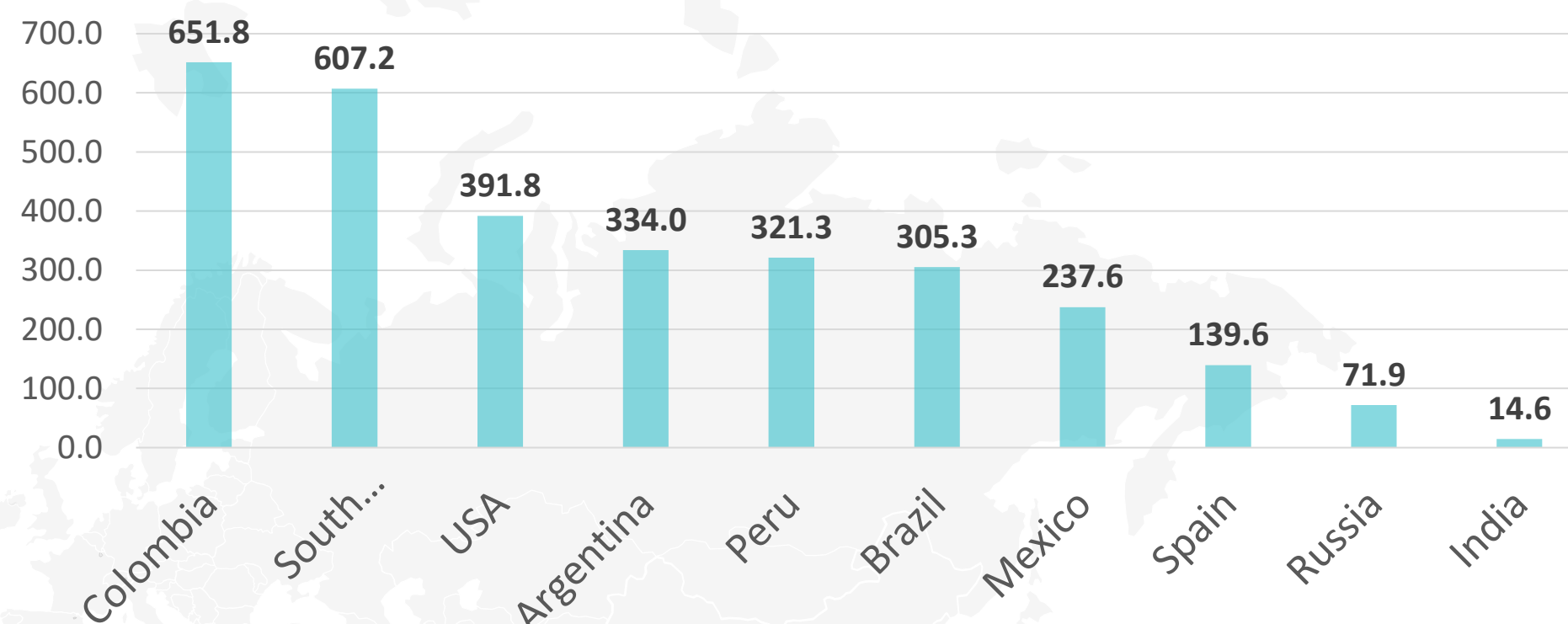


## Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

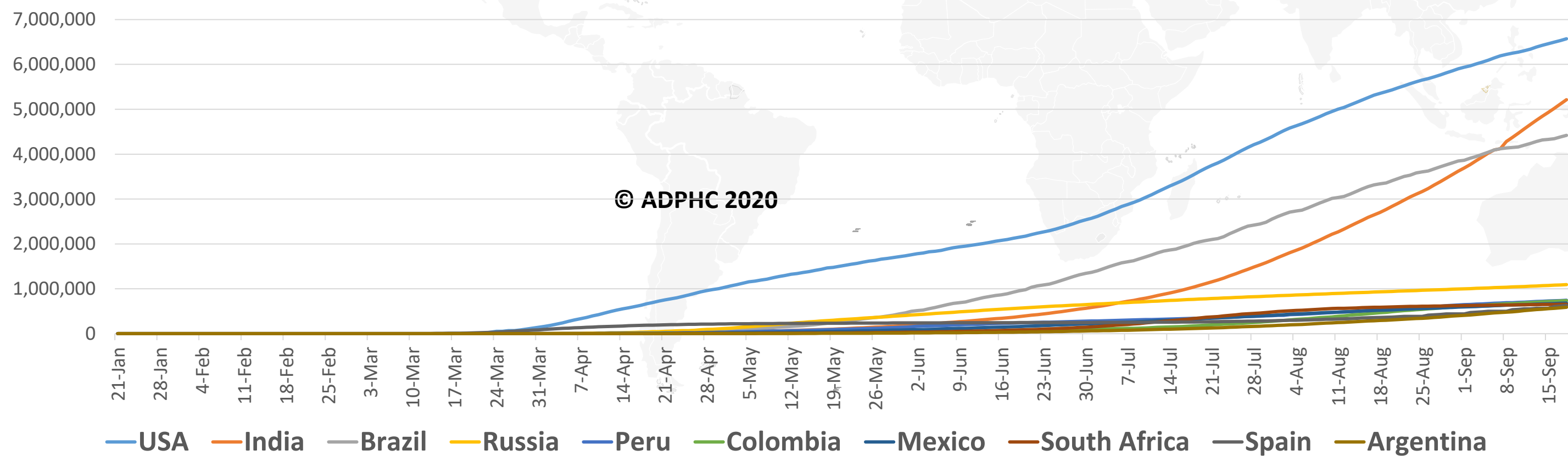
### TOTAL DEATHS



### DEATHS PER MILLION



### TOTAL INFECTED CASES

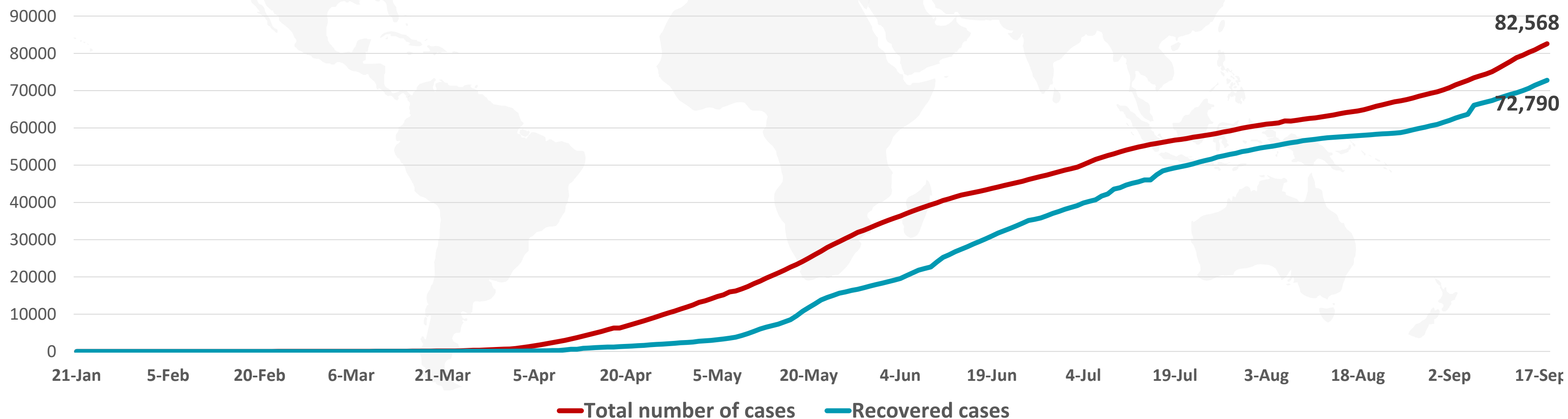


USA	6,571,119
Brazil	5,214,677
India	4,419,083
Russia	1,091,186
Peru	744,400
Colombia	736,377
Mexico	680,931
South Africa	655,572
Spain	625,651
Argentina	589,012

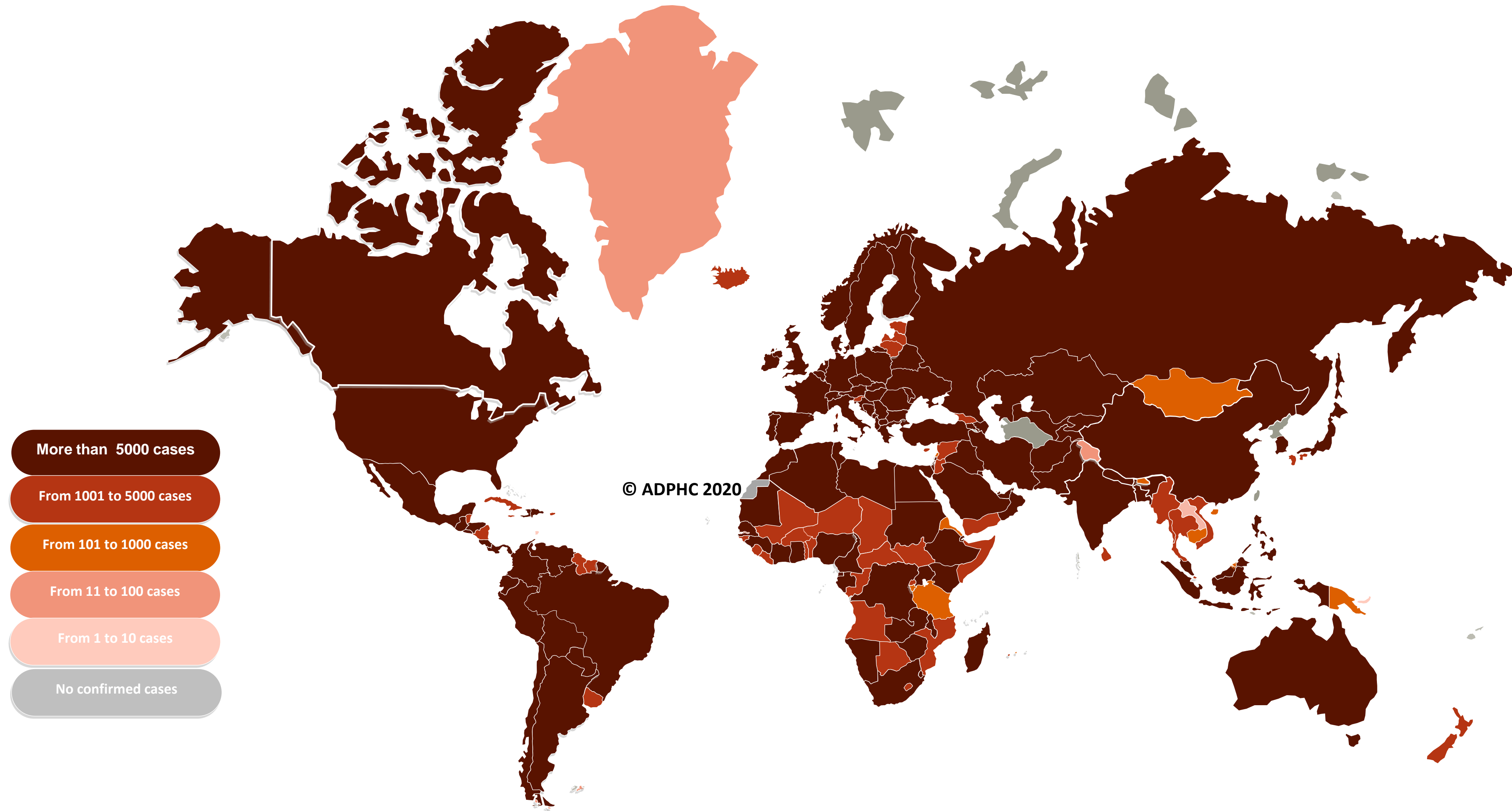
**Figure 6: COVID-19 Status in the UAE** (Federal Competitiveness and Statistics Authority Dashboard)



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



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



More than 5000 cases

From 1001 to 5000 cases

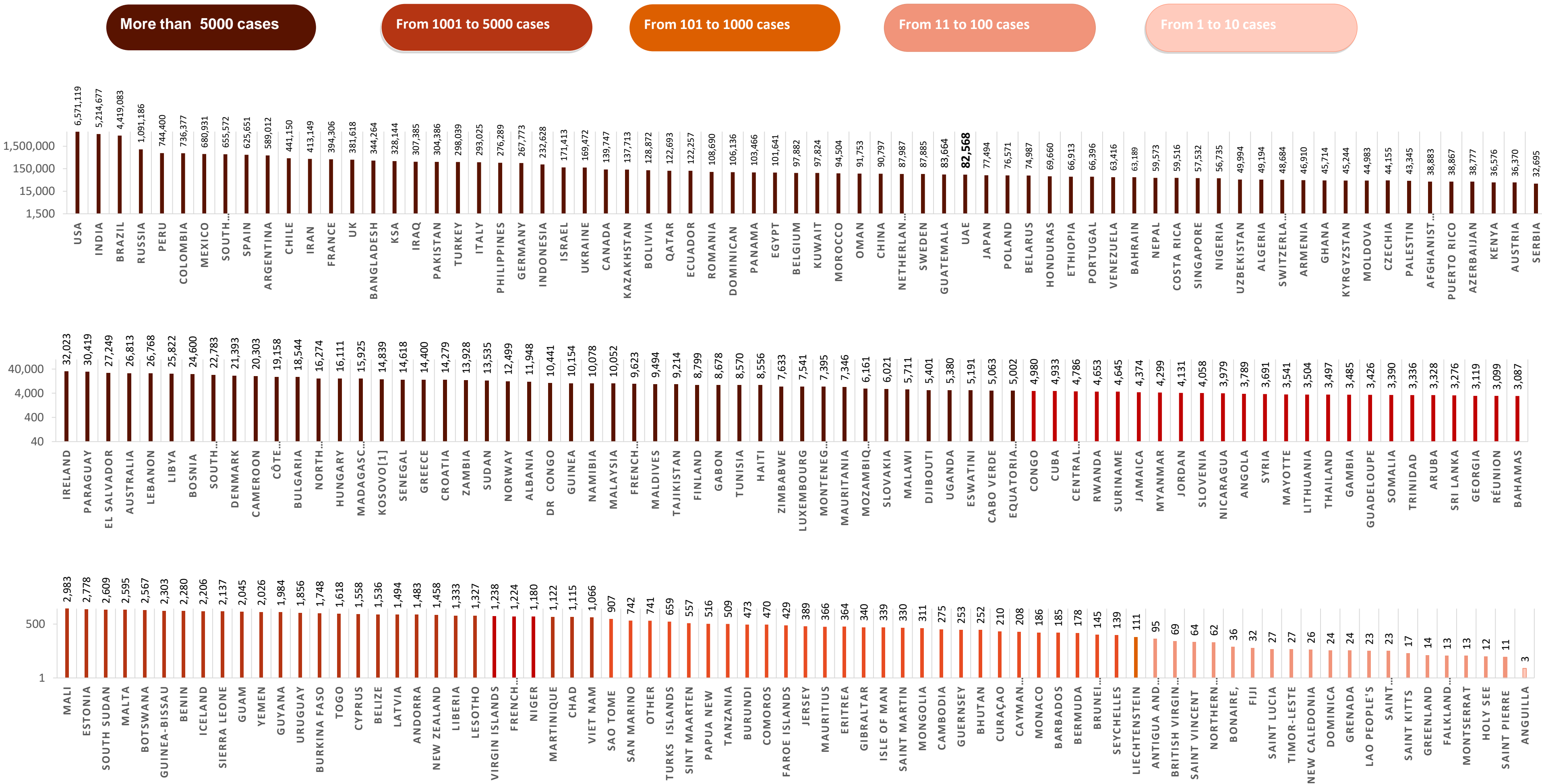
From 101 to 1000 cases

From 11 to 100 cases

From 1 to 10 cases

No confirmed cases

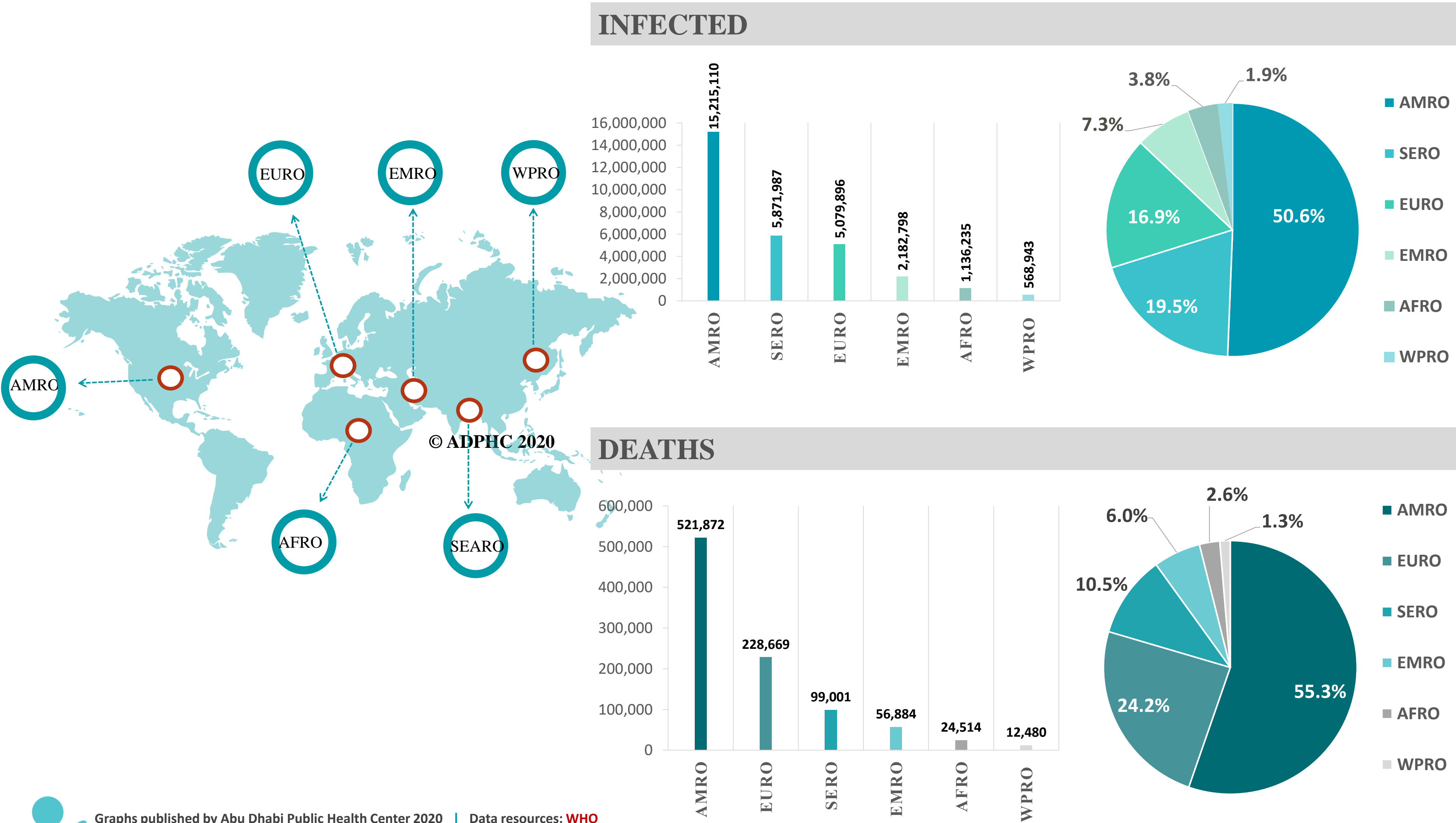
## Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases



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



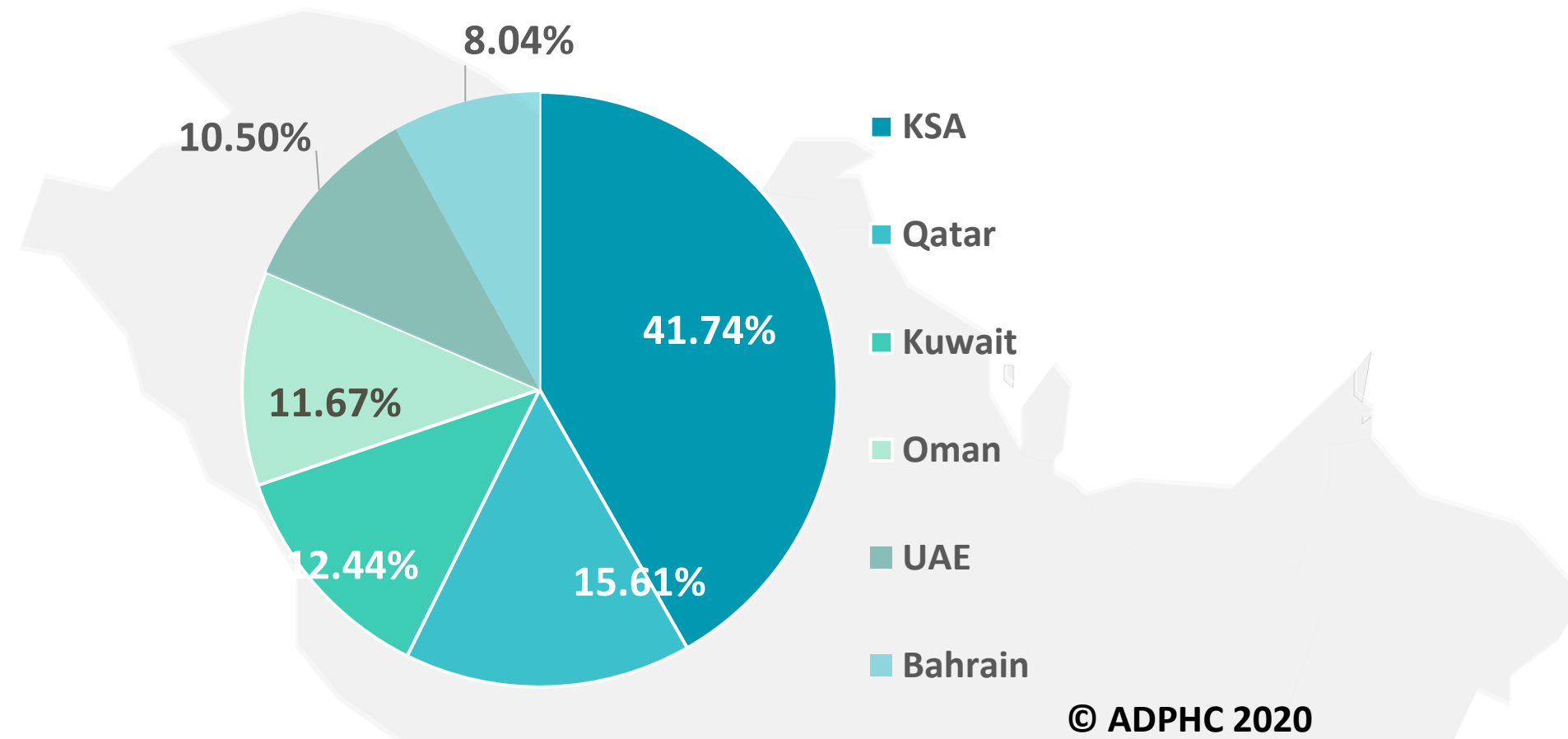
Figure 8: Global Distribution of COVID-19 Cases per Region



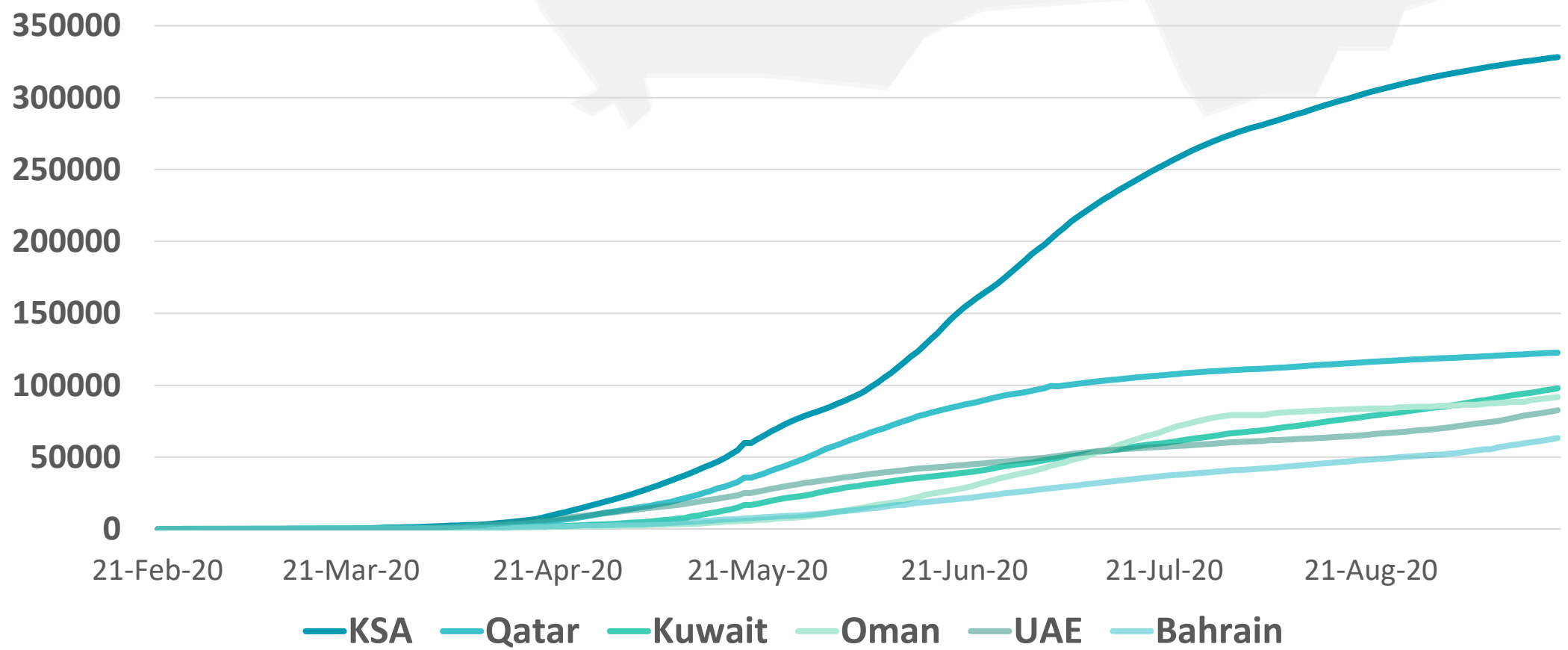
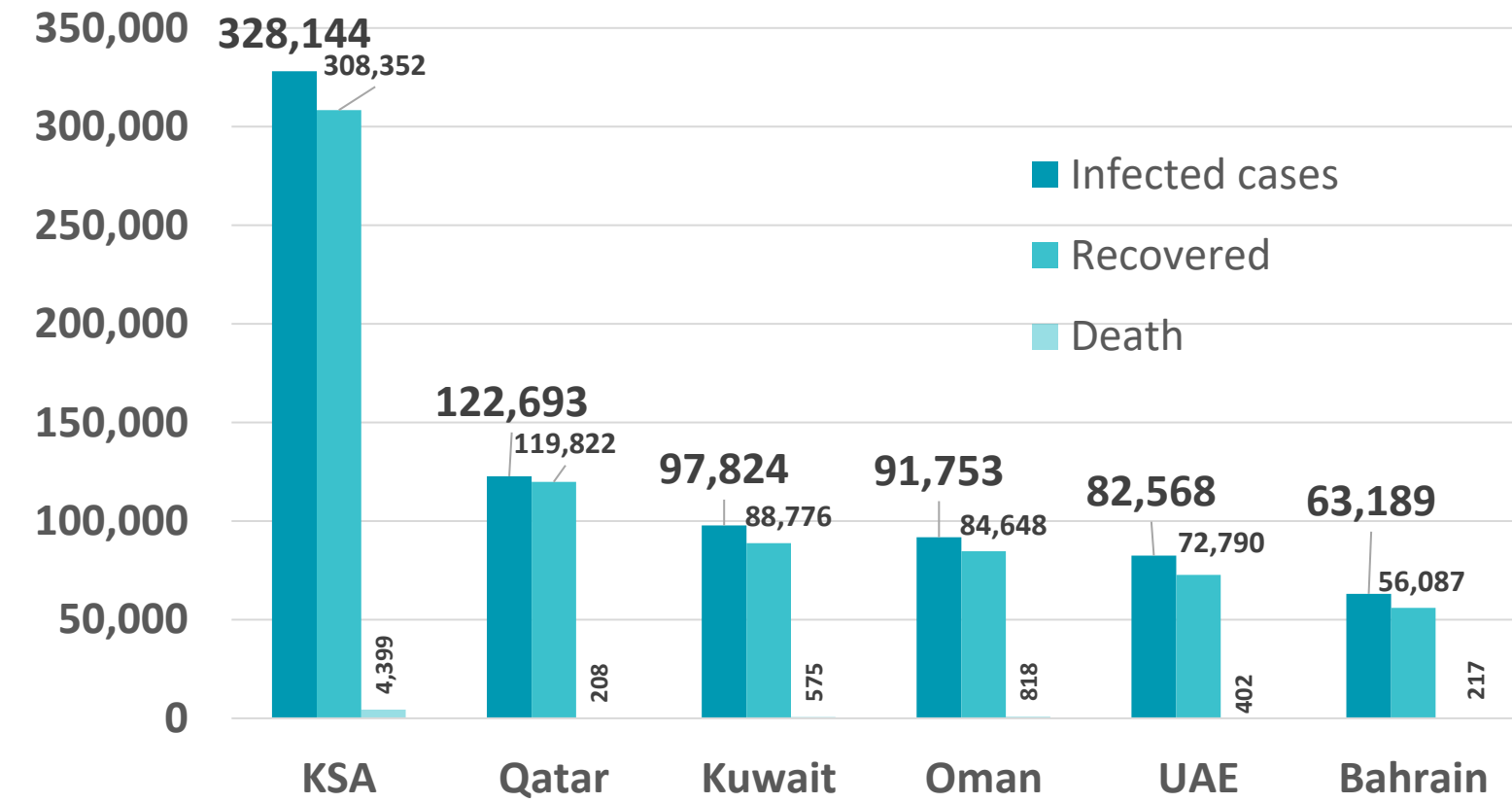
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: [WHO](#)

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

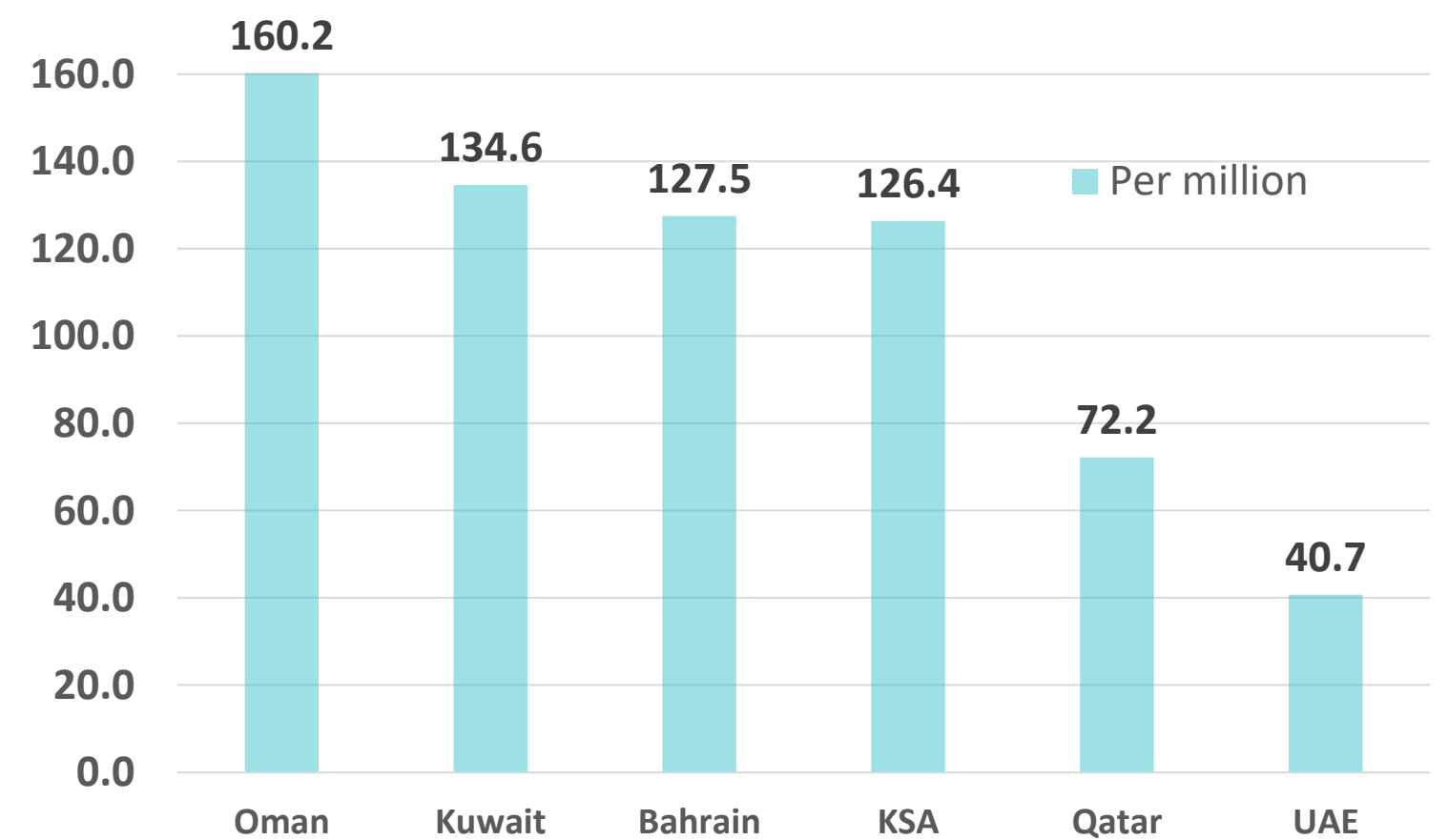
### TOTAL NUMBER OF INFECTED CASES



### 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



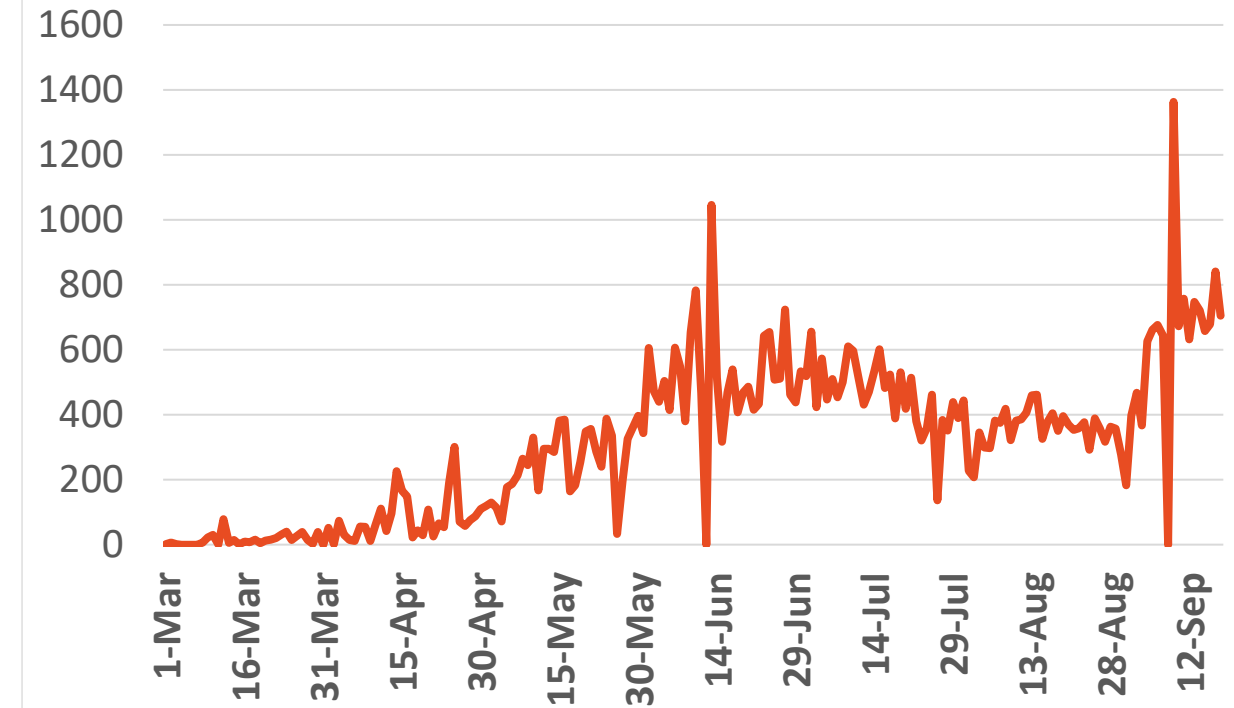
Source : National Emergency Crisis and Disaster Management Authority

### KSA



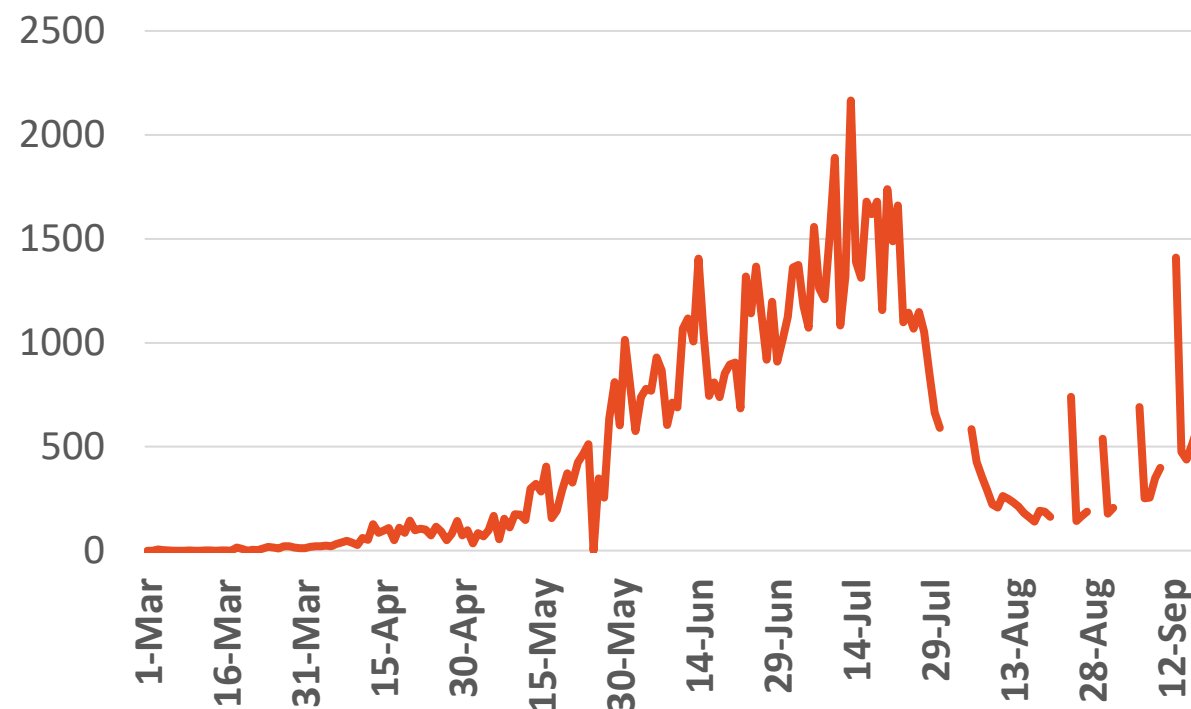
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman

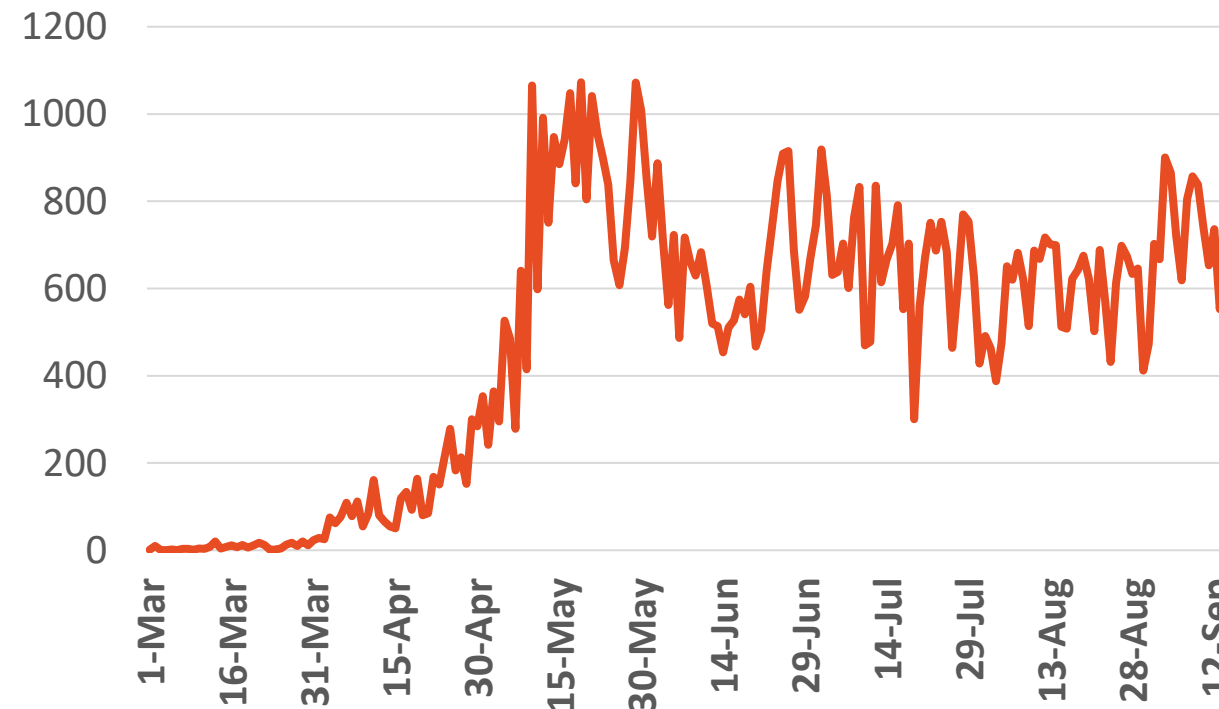


Source :Oman ministry of health

\*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.

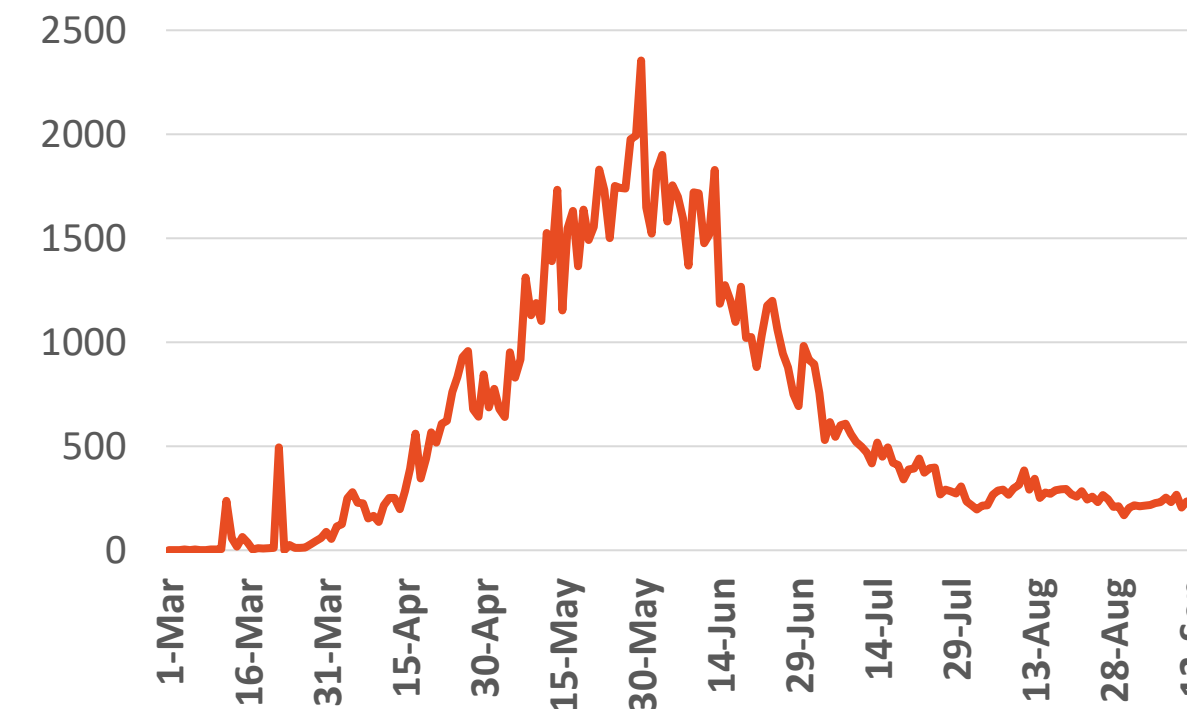
### Kuwait

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Source : Kuwait ministry of health

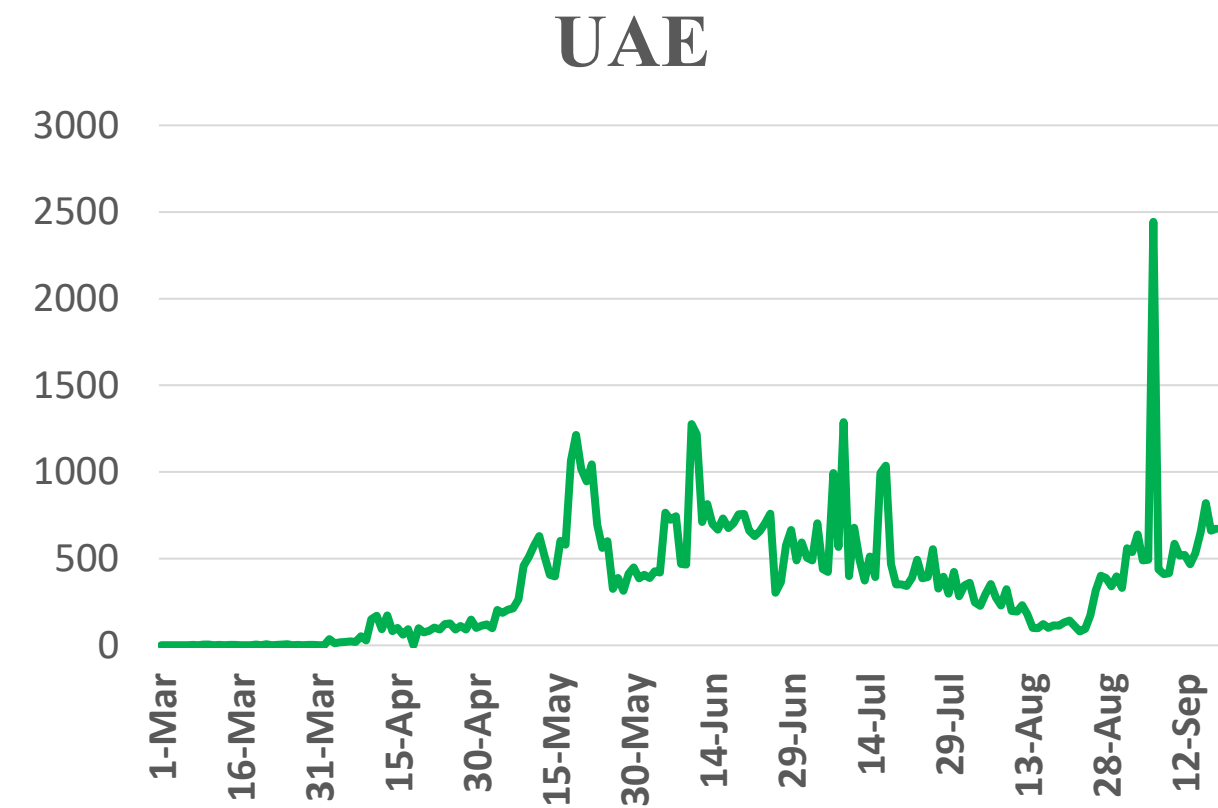
### Qatar



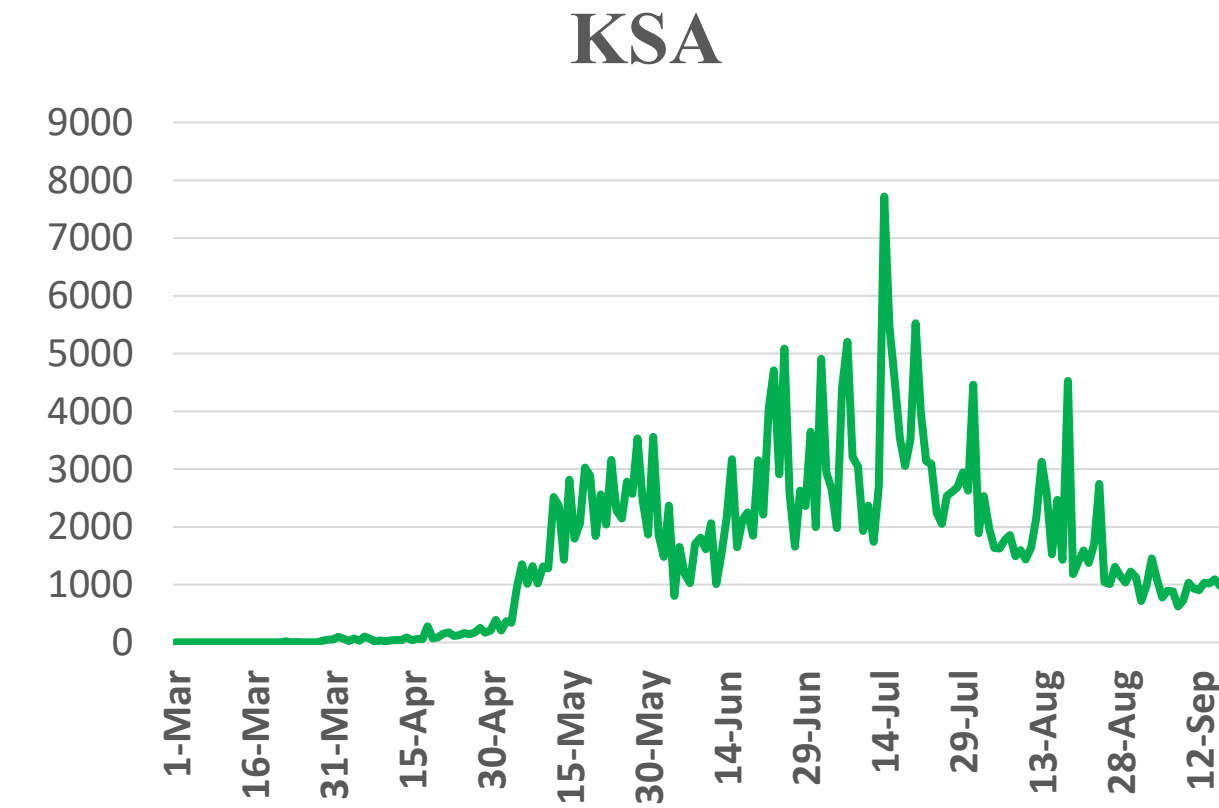
Source : Qatar ministry of health



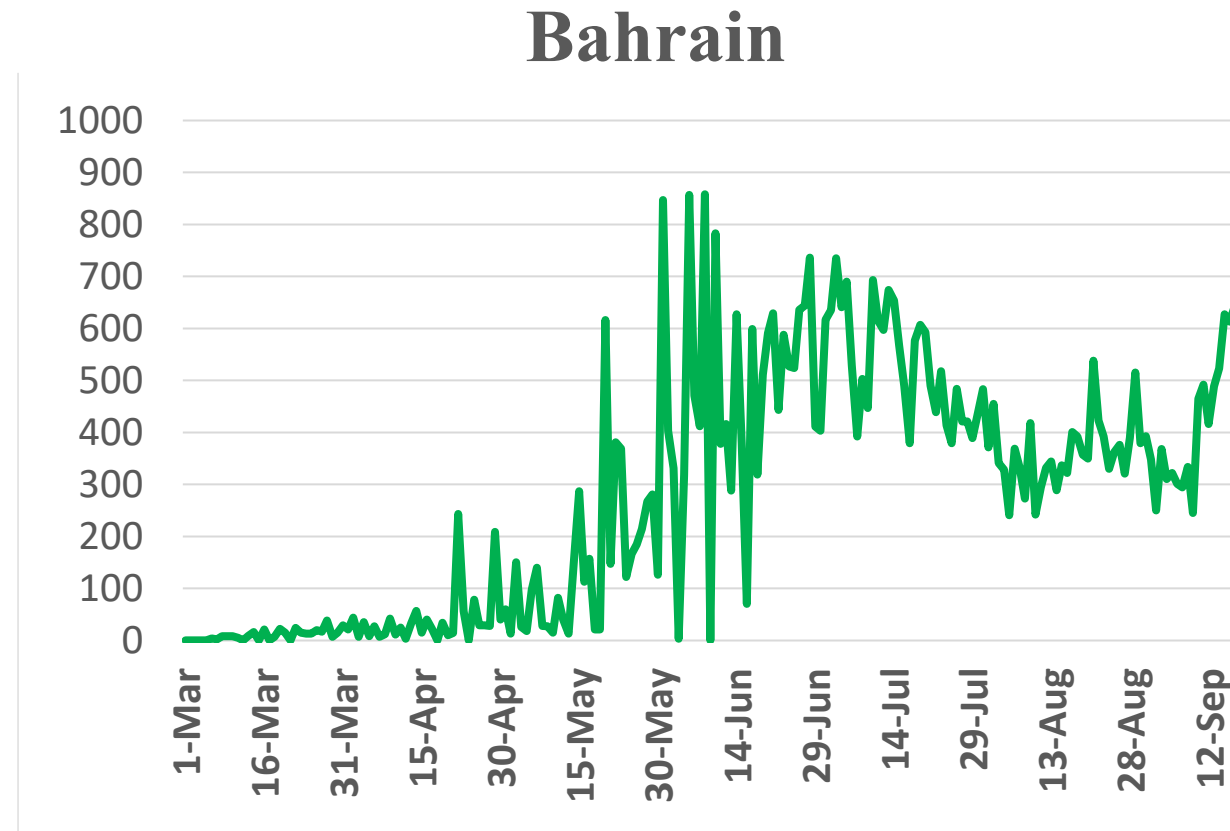
**Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries**



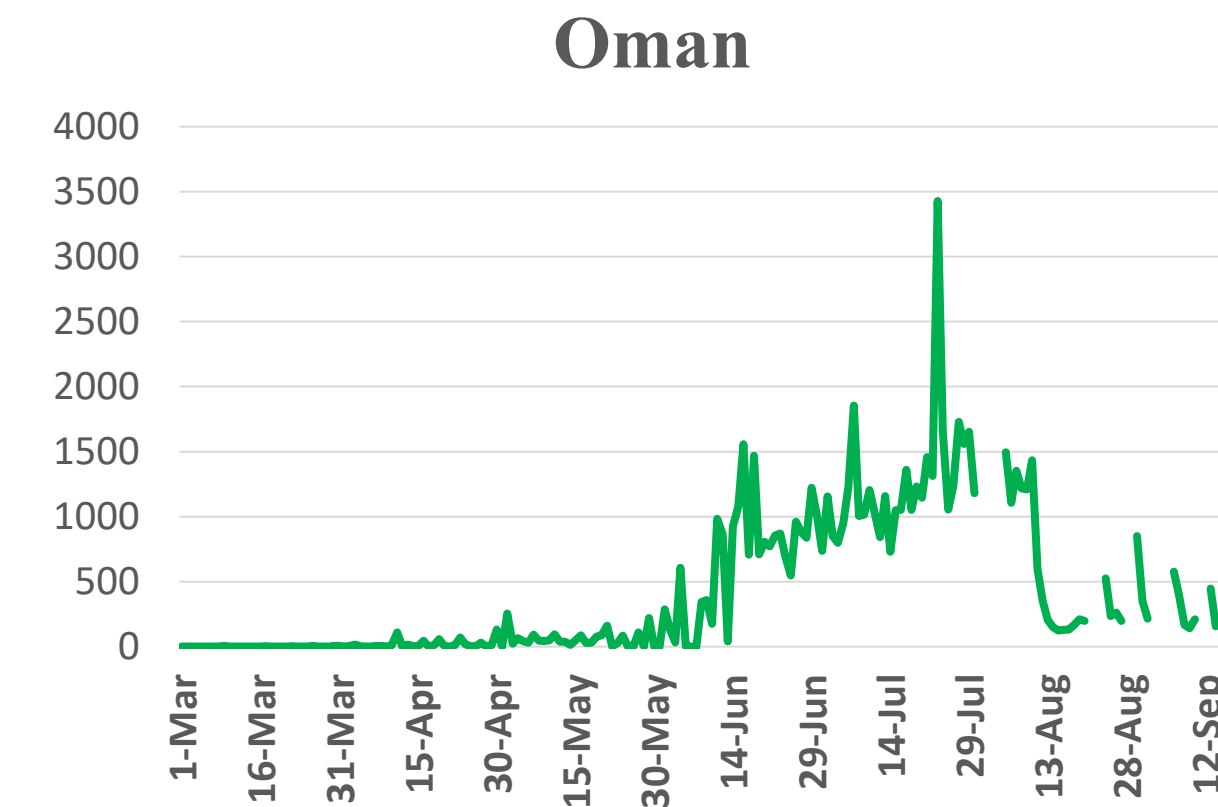
Source : National Emergency Crisis and Disaster Management Authority



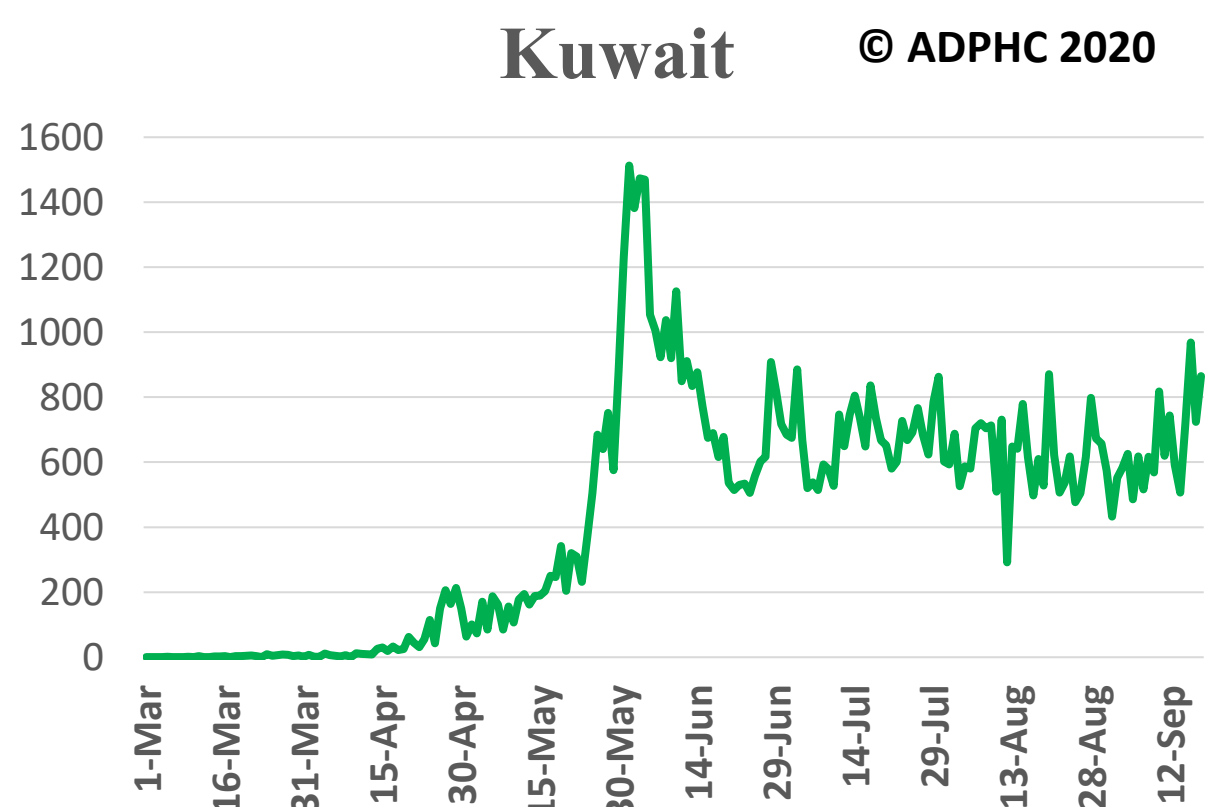
Source : KSA ministry of health



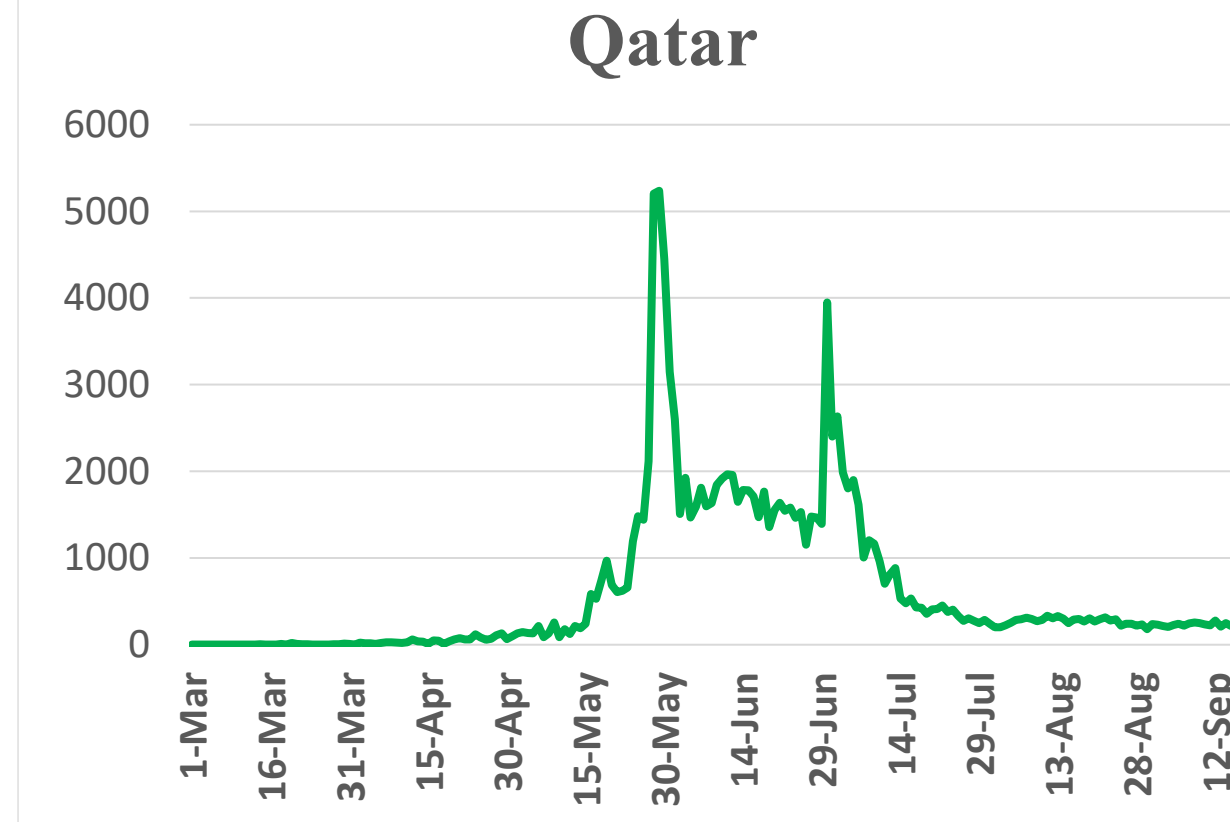
Source : Bahrain ministry of health



Source : Oman ministry of health



Source : Kuwait ministry of health



Source : Qatar ministry of health

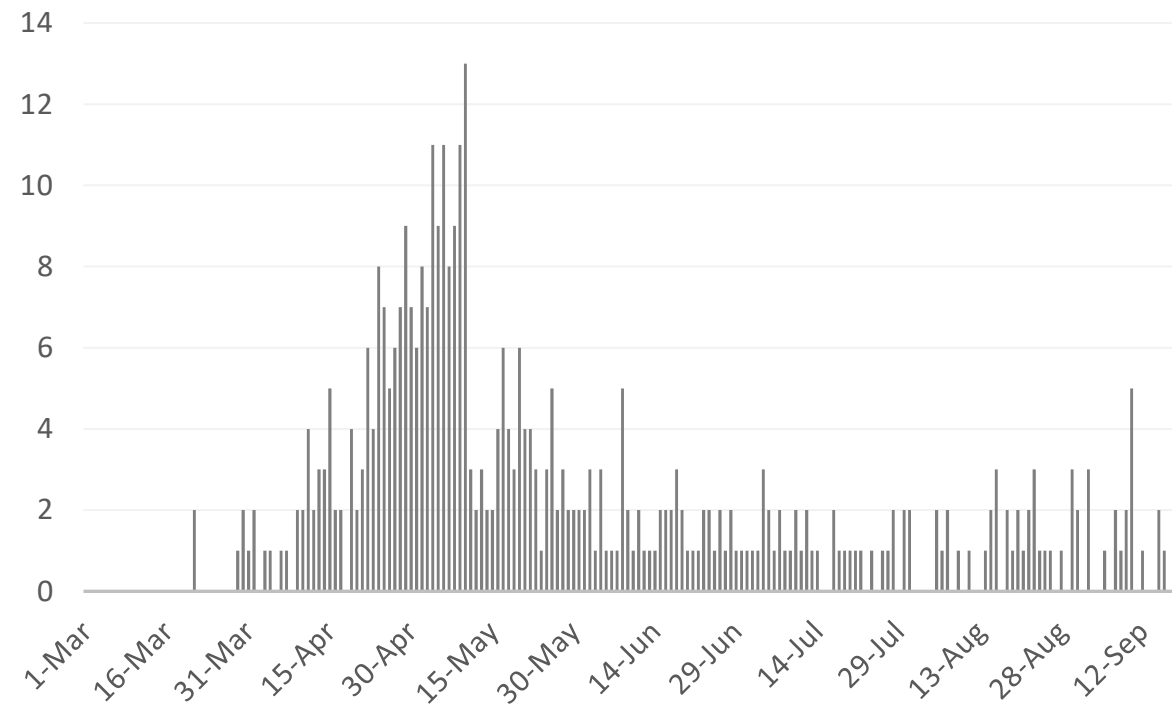
\*No announced statistic data from 31 July to 4 August, 21,23,28,30 August, 2, 4, 5,11,12,18 & 19 September

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



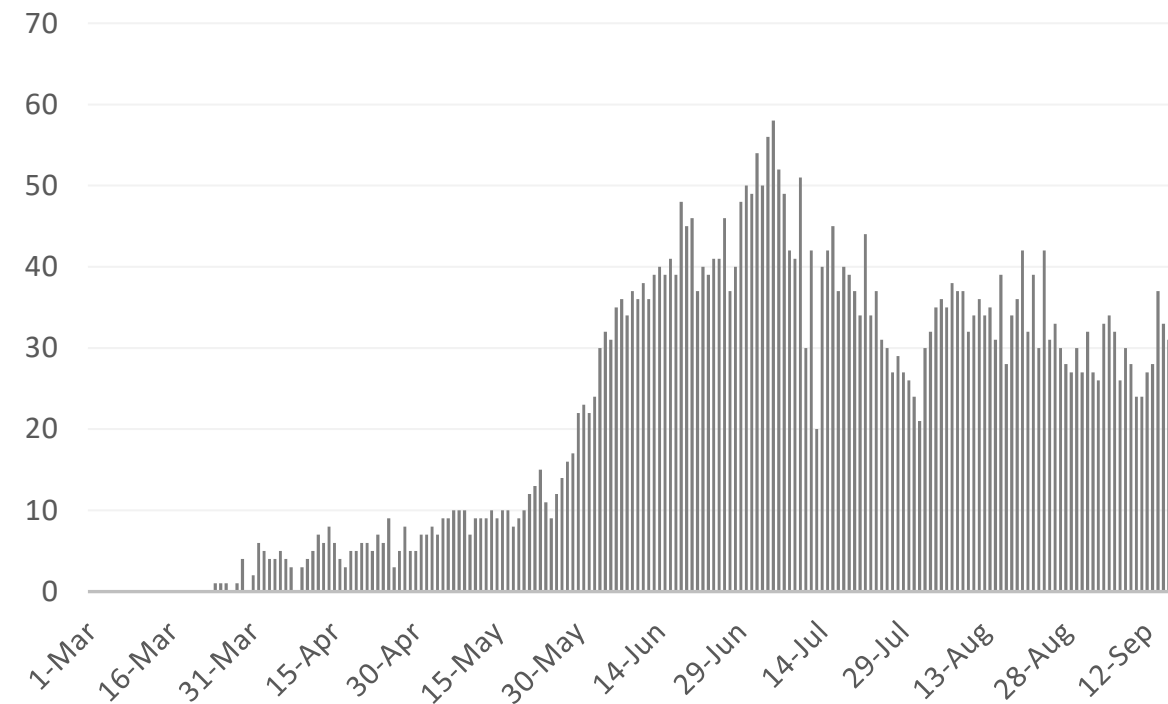
## Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

### UAE



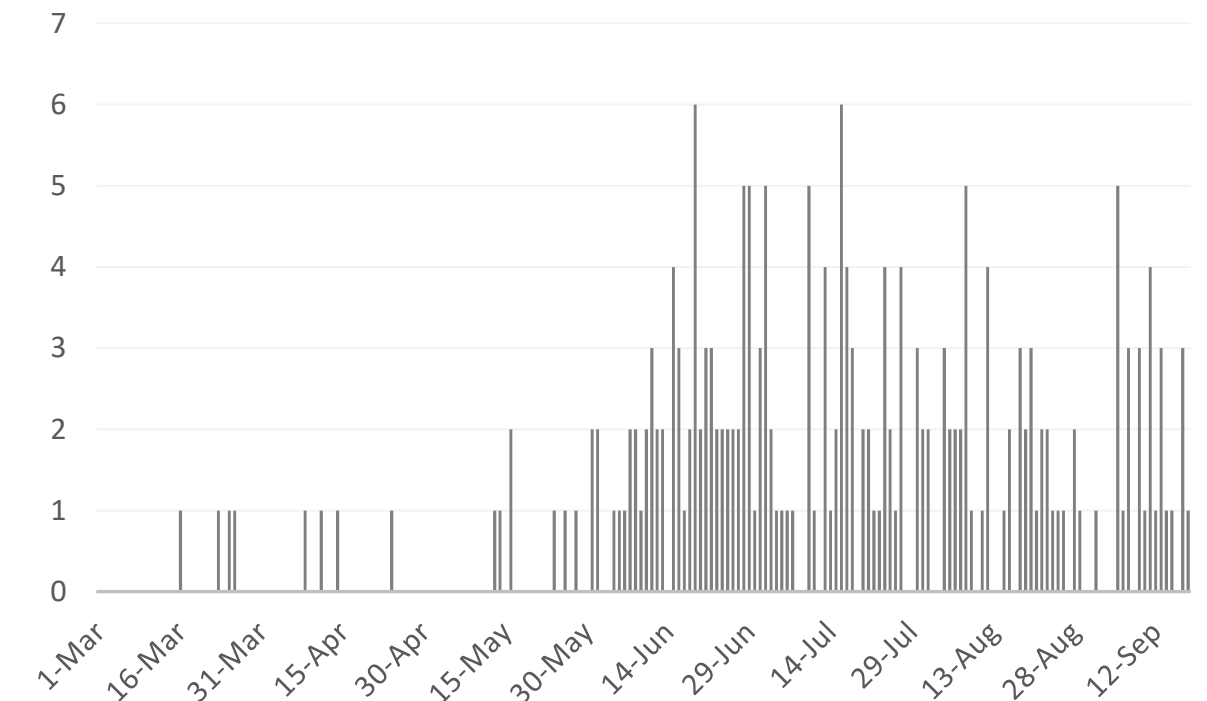
Source : National Emergency Crisis and Disaster Management Authority

### KSA



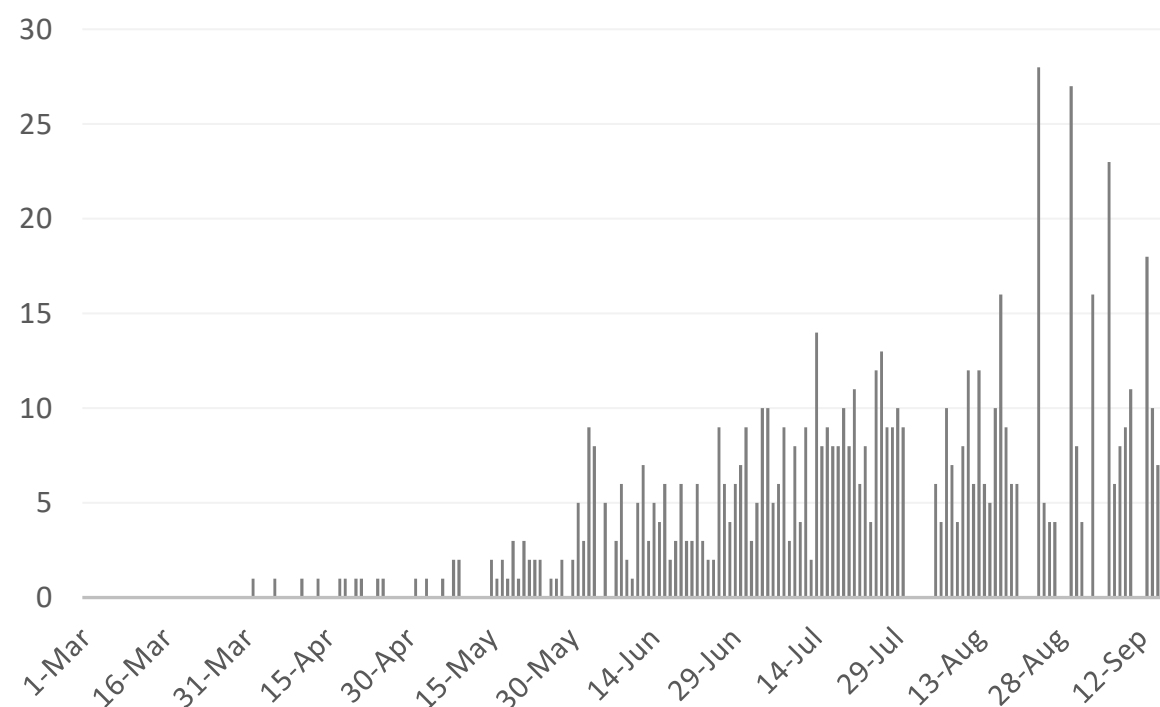
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman



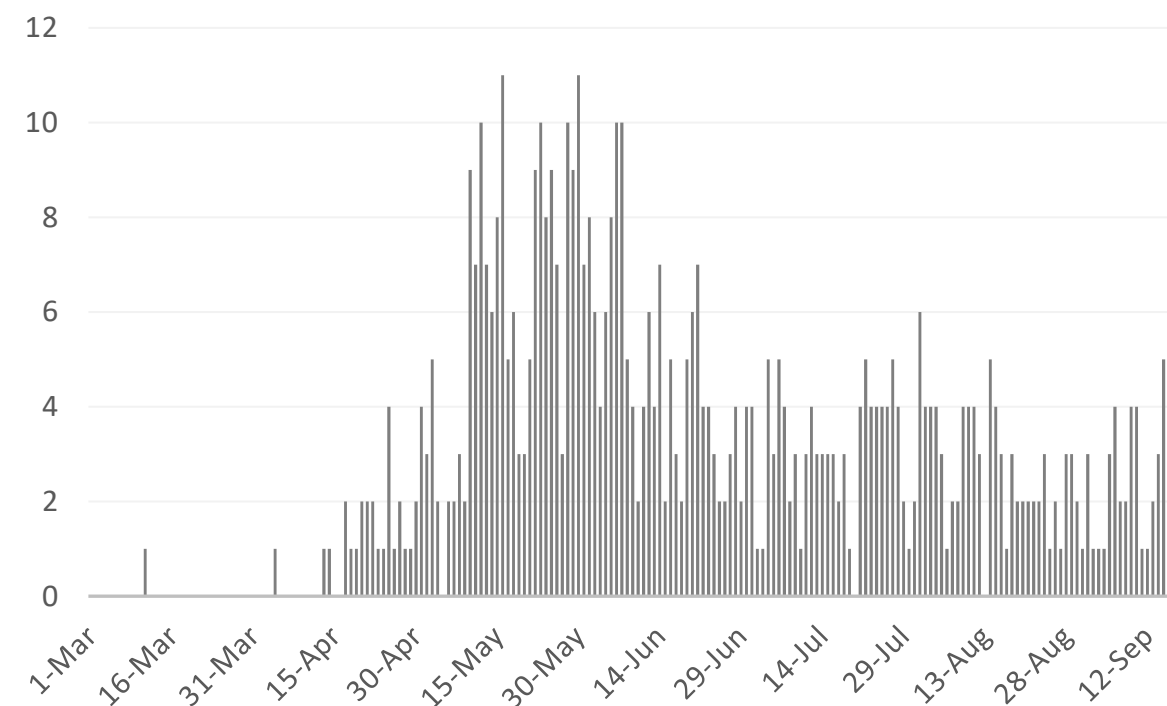
Source :Oman ministry of health

\*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.

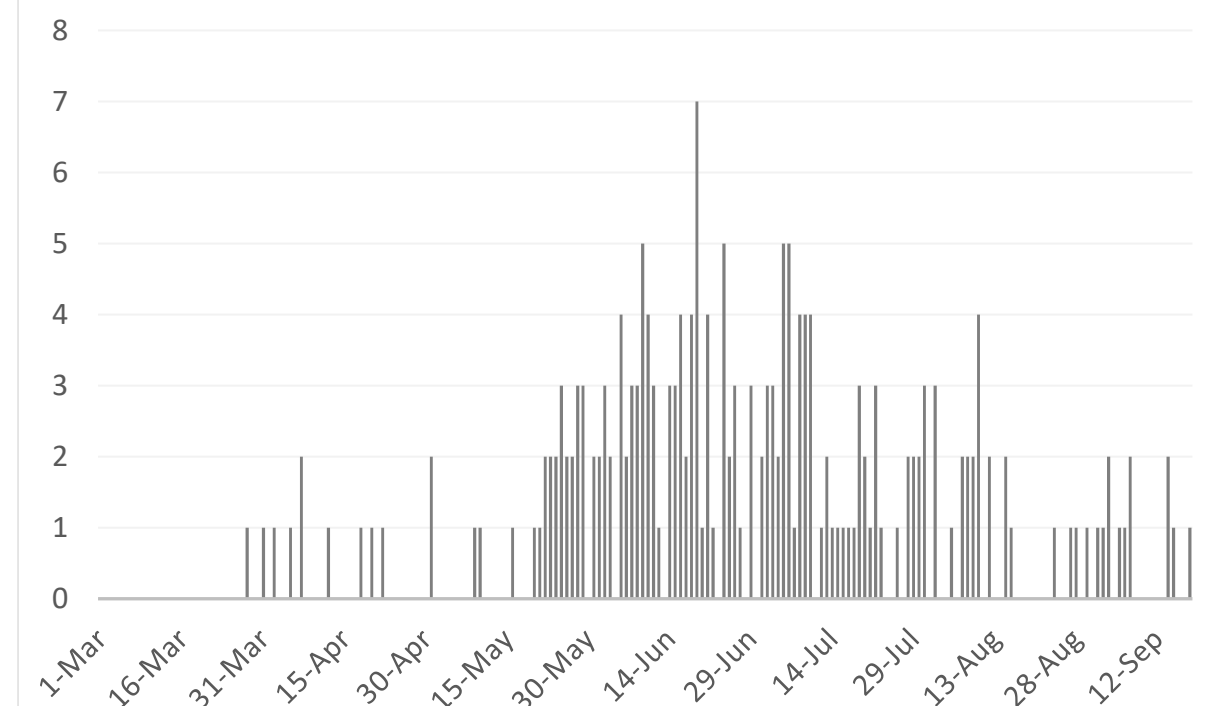
### Kuwait

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Source : Kuwait ministry of health

### Qatar



Source : Qatar ministry of health





# IMMUNOLOGY

## Article 1

# COVID-19 Herd Immunity: Where Are We?

Published

September 09, 2020 [Nature](#)

### Herd Immunity

- Herd immunity is achieved when one infected person in a population generates on average less than one secondary case.
- Only a proportion of a population needs to be immune (through overcoming natural infection or through vaccination) to an infectious agent for it to stop generating large outbreaks.

### Effective Reproduction number (R0)

- To achieve herd immunity, the required percent of the population to be immune depends on the R0.
- **For example, if  $R_0 = 3$ , the herd immunity threshold for SARS-CoV-2 is expected to require 67% population immunity.**

### Role of Super-Spreaders

- Some individuals are more likely to get infected and to transmit because they have more contacts, hence termed as super-spreaders. As a result, the population of susceptible individuals gets rapidly depleted of these super-spreaders, and the pace of transmission slows down, and the percent of the population to be infected for herd immunity decreases.

### Role of Children

- Children younger than 10 years may be less susceptible and contagious than adults, in which case they may be partially omitted from the computation of herd immunity, meaning lower herd immunity threshold for Covid-19.

### Antibodies vs. T-cell Reactivity

- The detection of antibodies through serological test may not capture the full spectrum of SARS-CoV-2 protective immunity.
- T cell reactivity has been documented in the absence of antibodies among contacts of patients, although the protective nature and the duration of the observed response are unknown.

### How Many Need to be Infected to Achieve Herd Immunity?

- Given the knowledge about Covid-19 today, there is little evidence to suggest that the spread of SARS-CoV-2 might stop naturally before at least **50% of the population** has become immune.





# PUBLIC HEALTH RESPONSE

## Article 2

# Prevalence of Third-Party Tracking on COVID-19

Published

September 8, 2020 [JAMA](#)

## Related Web Pages

- In the United States (US), on May 15, 2020, to identify web pages likely to be visited by individuals seeking COVID-19 related information, Google Trends was utilized to identify the top 25 search queries related to COVID. Top 20 URLs for each query were retrieved using non-personalized Google searches. Each unique web page was visited using webXray that detects third-party tracking on websites. Data requests from third party domains were recorded for each web page.
- Of those 538 web pages, 535 (99%) included a third-party data request and 477 (89%) included a third-party cookie. Compared with commercial web pages, third-party cookies were slightly less common but still highly prevalent among government and academic web pages.

**Table 1. Third-Party Tracking Overall and by Website Type**

	Overall	Commercial (.com, .info, .net) <sup>a</sup>	Government (.gov, .int) <sup>b</sup>	Nonprofit (.org)	Academic (.edu)
No. (%) of web pages	538	320 (59)	110 (20)	91 (17)	17 (3)
Web pages, No. (%) [95% CI]					
With a third-party data request	535 (99) [98-100]	317 (99) [97-100]	110 (100) [96-100]	91 (100) [95-100]	17 (100) [77-100]
With a third-party cookie	477 (89) [86-91]	302 (94) [91-97]	86 (78) [69-85]	78 (86) [76-92]	11 (65) [39-85]
Third-party data requests per page, median (IQR)	30 (1-155)	77 (40-116)	8 (5-13)	16 (7-22)	14 (6-20)
Third-party cookies per page, median (IQR)	29 (0-375)	130 (52-241)	4 (1-4)	7 (2-15)	10 (0-17)

Abbreviation: IQR, interquartile range.

<sup>a</sup> No. of commercial web pages by top-level domain: .com, 311 (97%); .info, 8 (3%); .net, 1 (<1%).

<sup>b</sup> No. of government web pages by level of government: federal, 42 (38%); state, 56 (51%); local, 5 (5%); international, 7 (6%).



## Continued

- The median numbers of third-party data requests and third-party cookies per page were both higher on commercial web pages (77 and 130, respectively) than on government (8 and 4, respectively), non-profit (16 and 7, respectively), and academic (14 and 10, respectively) web pages. Most (95%) web pages included a data request from a third-party domain owned by Google, whereas seven other companies received data format least 40% of web pages studied.
- Third party tracking was prevalent among government and academic COVID-19 related web pages on which visitors might expect more privacy protections. Decision-makers in these institutions may not be aware of third-party tracking on their websites as they do not realize that tools used to monitor website traffic transmit data to third parties. These results suggest that attention should be paid to the privacy risks of online information seeking.

**Table 2. Most Prevalent Tracking Entities Overall and by Website Type**

Entity	Web pages reporting data to a given tracking entity, No. (%) [95% CI]				
	Overall (n = 538)	Commercial (n = 320)	Government (n = 110)	Nonprofit (n = 91)	Academic (n = 17)
Google	507 (95) [93-97]	303 (96) [93-98]	109 (100) [96-100]	78 (86) [76-92]	17 (100) [77-100]
Adobe Systems	267 (50) [46-55]	208 (66) [60-71]	30 (28) [20-37]	20 (22) [14-32]	9 (53) [29-76]
Amazon <sup>a</sup>	260 (49) [45-53]	232 (74) [68-78]	4 (4) [1-10]	19 (21) [13-31]	5 (29) [11-56]
Comscore <sup>b</sup>	249 (47) [43-51]	224 (71) [66-76]	0 (0) [0-4]	24 (26) [18-37]	1 (6) [0-31]
Oracle	246 (46) [42-51]	196 (62) [57-68]	13 (12) [7-20]	32 (35) [26-46]	5 (29) [11-56]
Facebook	243 (46) [41-50]	174 (55) [50-61]	13 (12) [7-20]	48 (53) [42-63]	8 (47) [24-71]
AT&T	227 (43) [38-47]	208 (66) [60-71]	0 (0) [0-4]	13 (14) [8-24]	6 (35) [15-61]
The Trade Desk <sup>c</sup>	212 (40) [36-44]	198 (63) [57-68]	0 (0) [0-4]	8 (9) [4-17]	6 (35) [15-61]
LiveRamp (formerly Acxiom) <sup>d</sup>	204 (38) [34-43]	188 (60) [54-65]	0 (0) [0-4]	9 (10) [5-18]	7 (41) [19-67]
Verizon	187 (35) [31-39]	178 (57) [51-62]	2 (2) [0-7]	3 (3) [1-10]	4 (24) [8-50]





# THANK YOU

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