

SCIENTIFIC RESEARCH MONITORING ON COVID-19

27 SEPTEMBER 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19

(ISSUE 239)

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



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.

For further inquiries you may communicate with us as PHP@adphc.gov.ae

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).

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Immunology

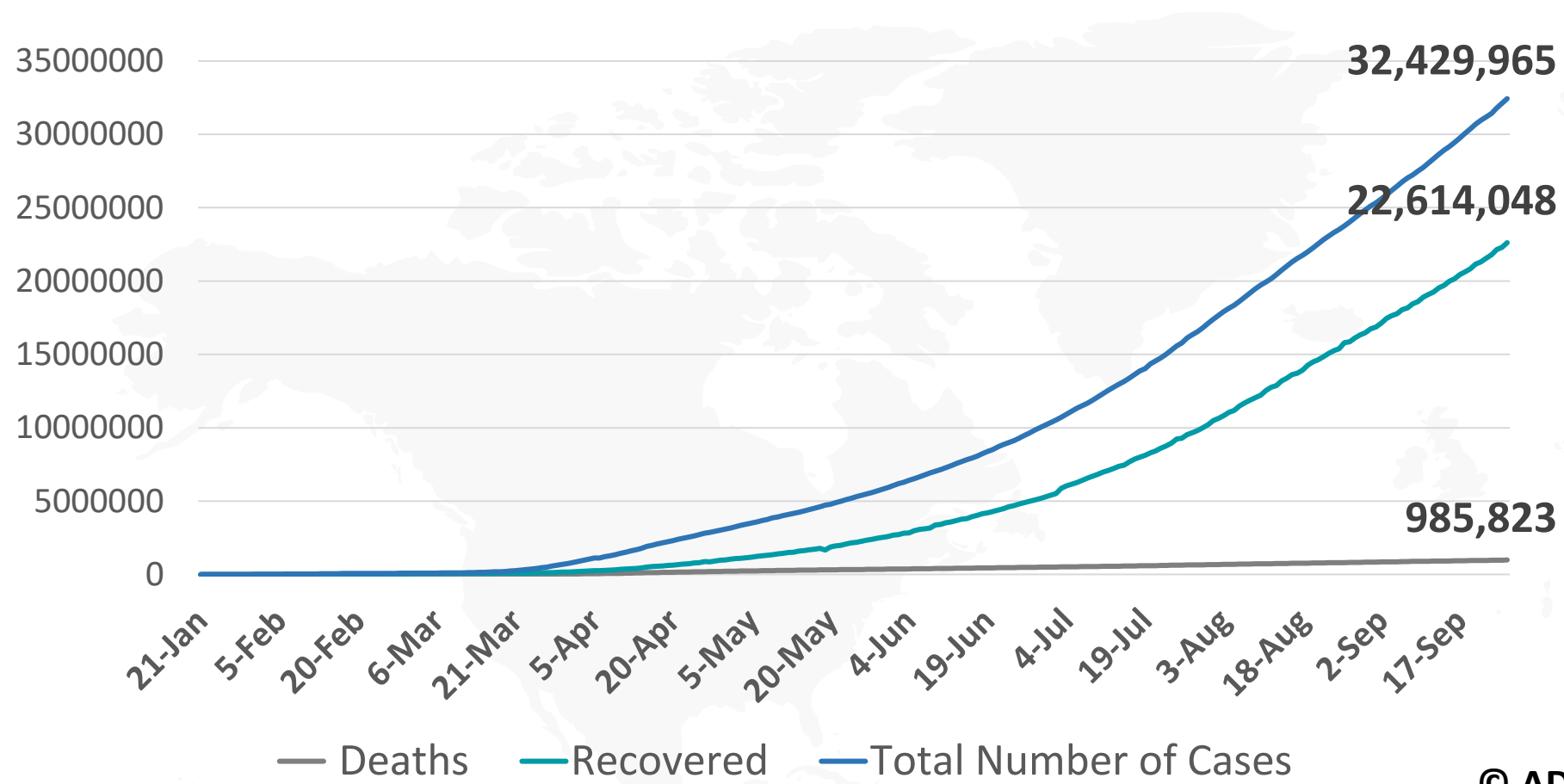
A History of Herd Immunity

Public Health Response

Analysis of Drug Test Results Before and After the US Declaration of a National Emergency Concerning the COVID-19 Outbreak



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)

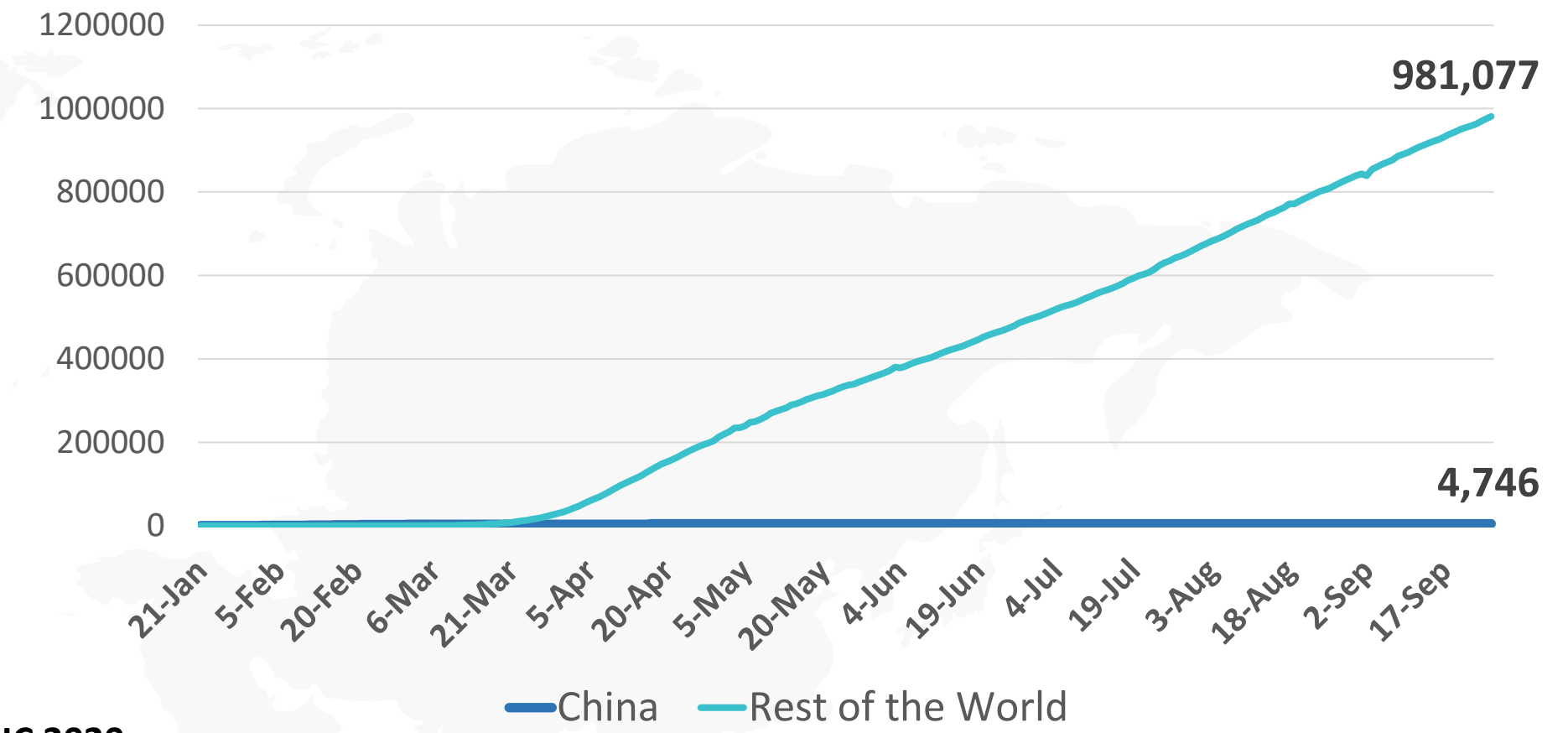


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

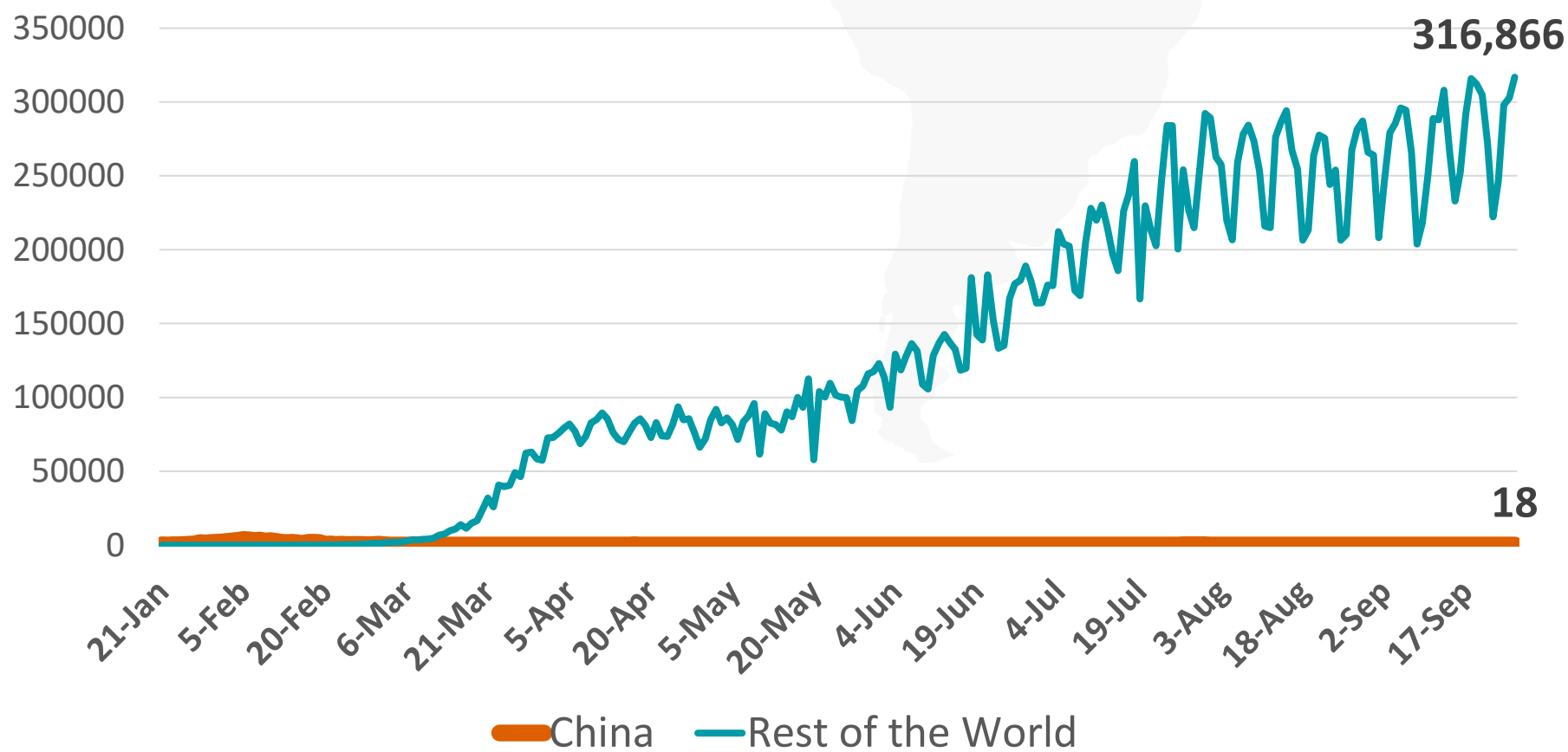


Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)

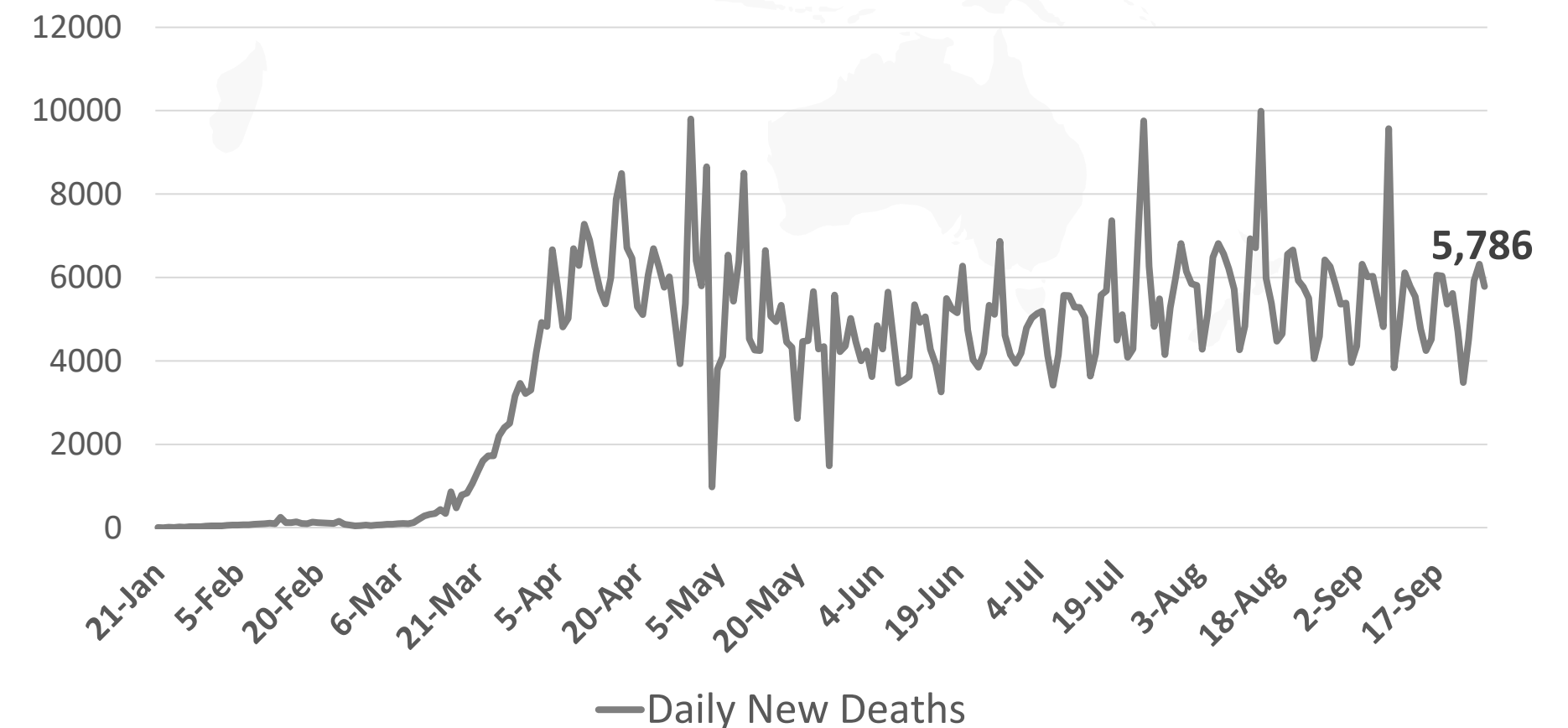
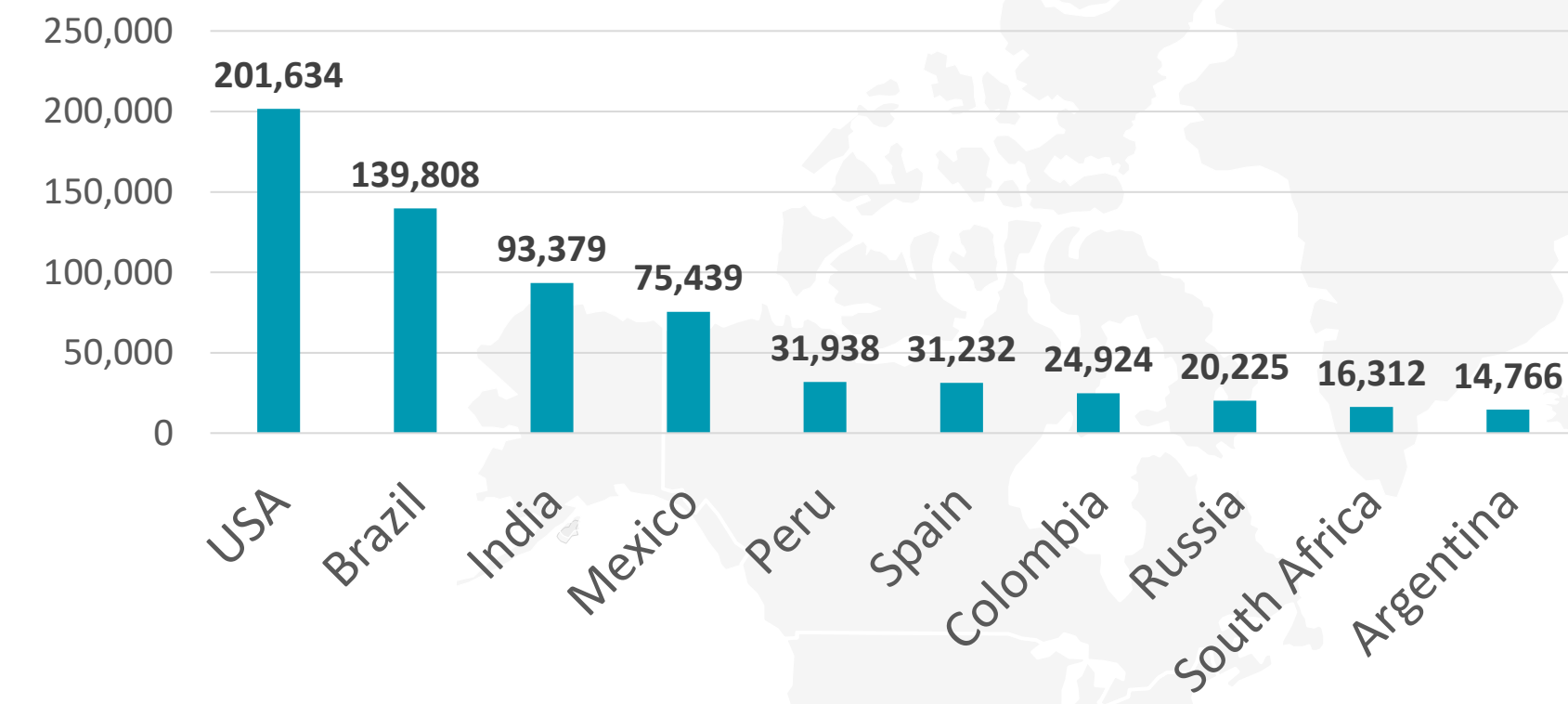
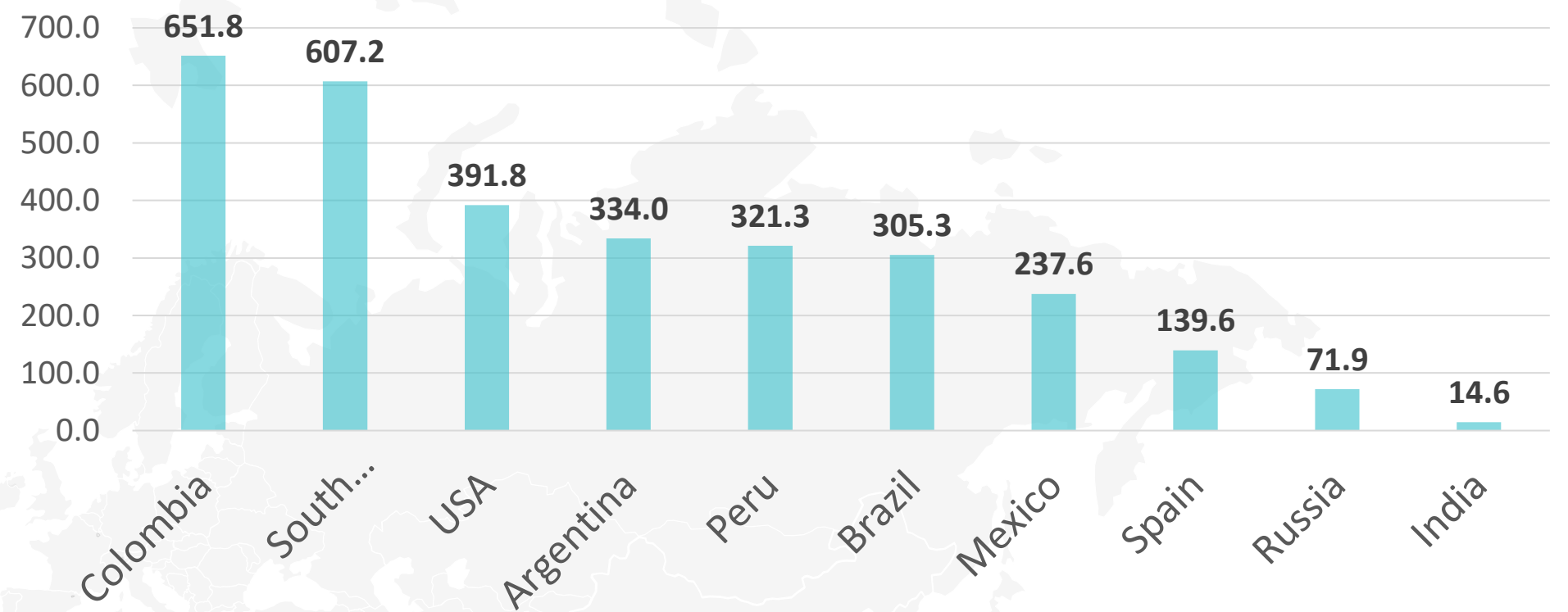


Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

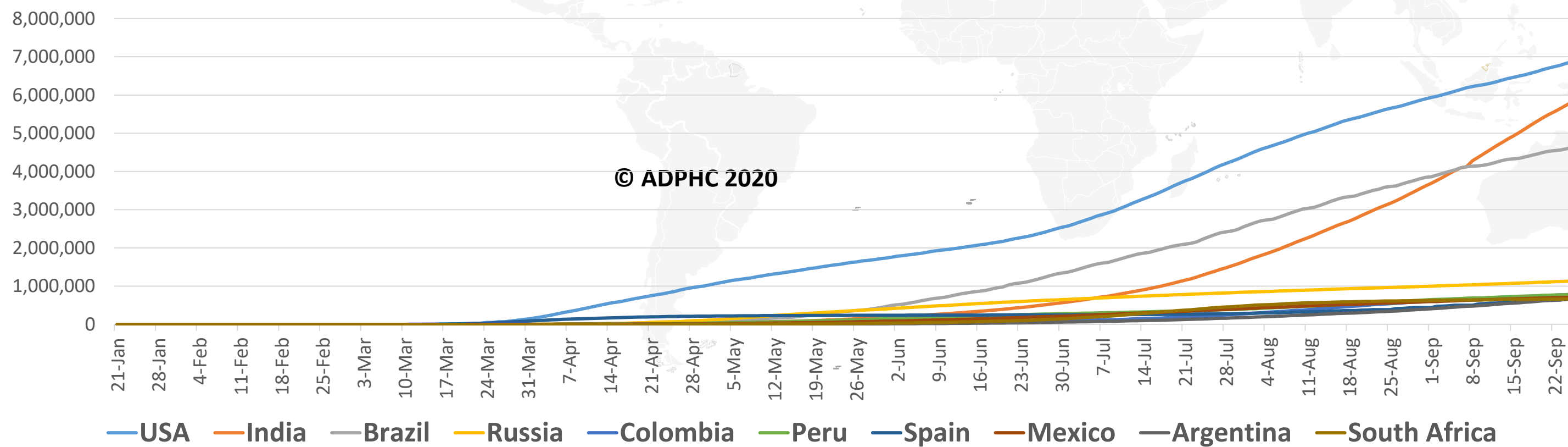
TOTAL DEATHS



DEATHS PER MILLION

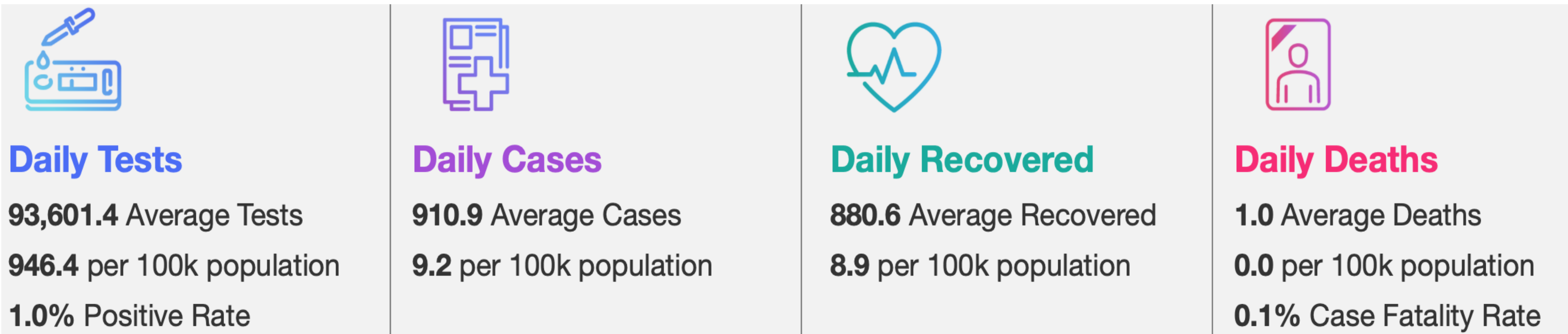


TOTAL INFECTED CASES



USA	6,910,082
India	5,903,932
Brazil	4,657,702
Russia	1,143,571
Colombia	790,823
Peru	788,930
Spain	716,481
Mexico	715,457
Argentina	678,266
South Africa	668,529

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

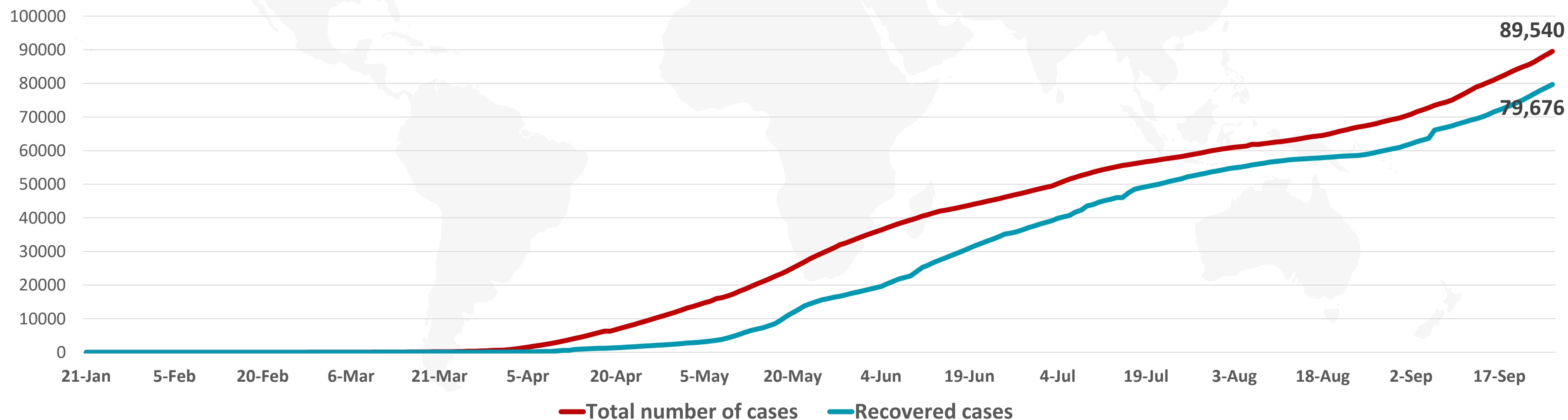


Figure 7A : Global Distribution of COVID-19 Cases

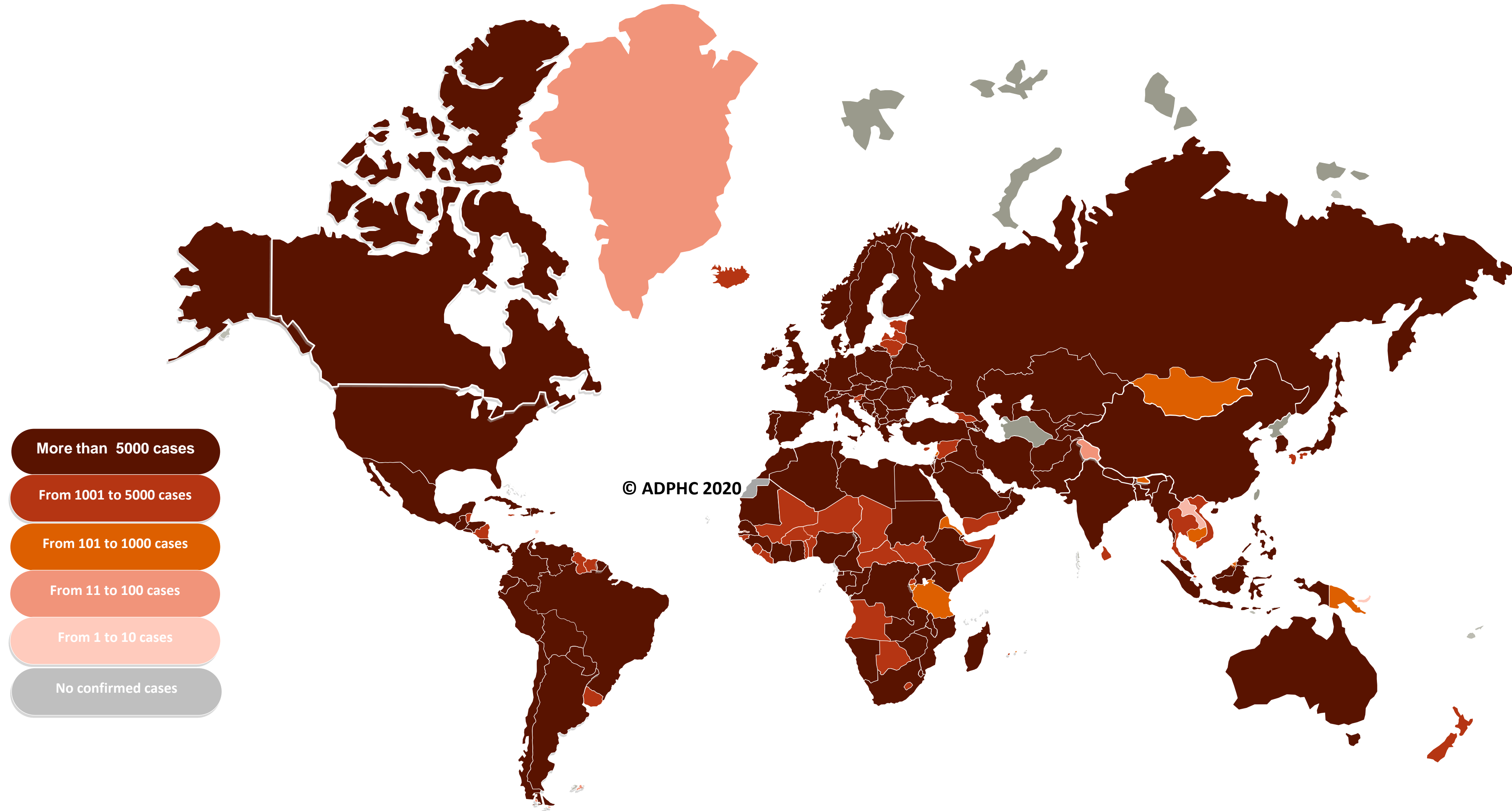
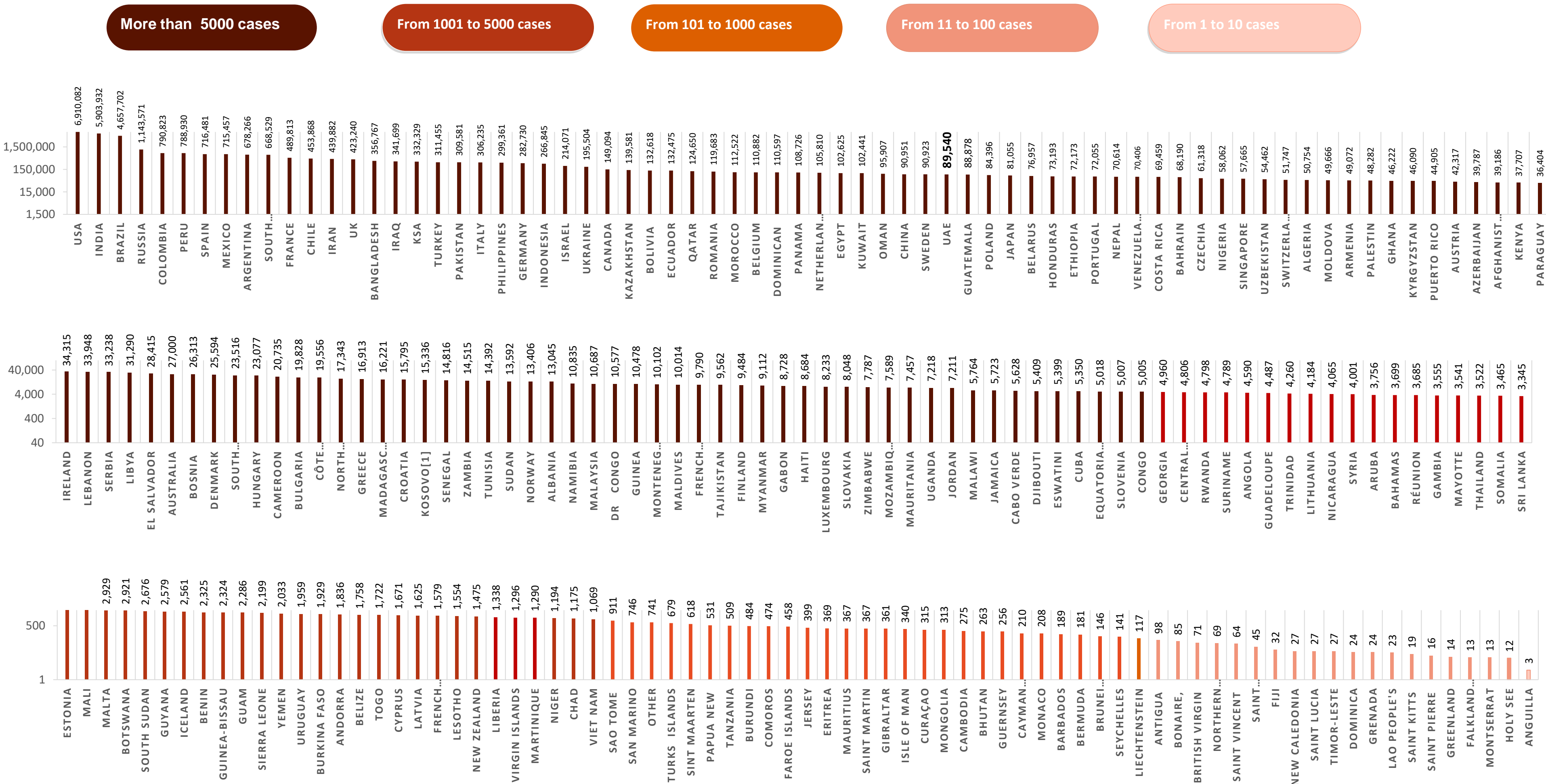


Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases

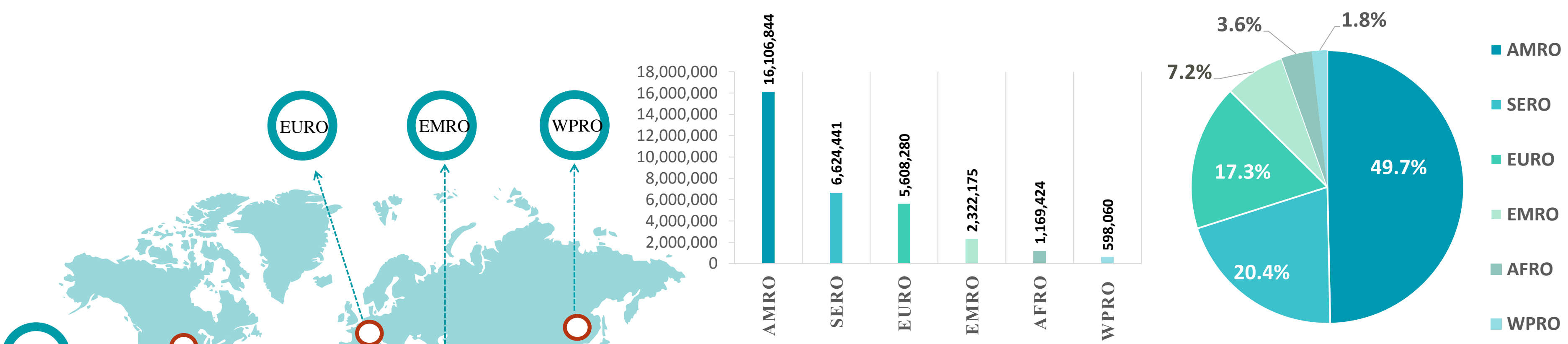


Other*: includes cases and deaths reported under the international conveyance(Diamond Princess)



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

INFECTED



DEATHS

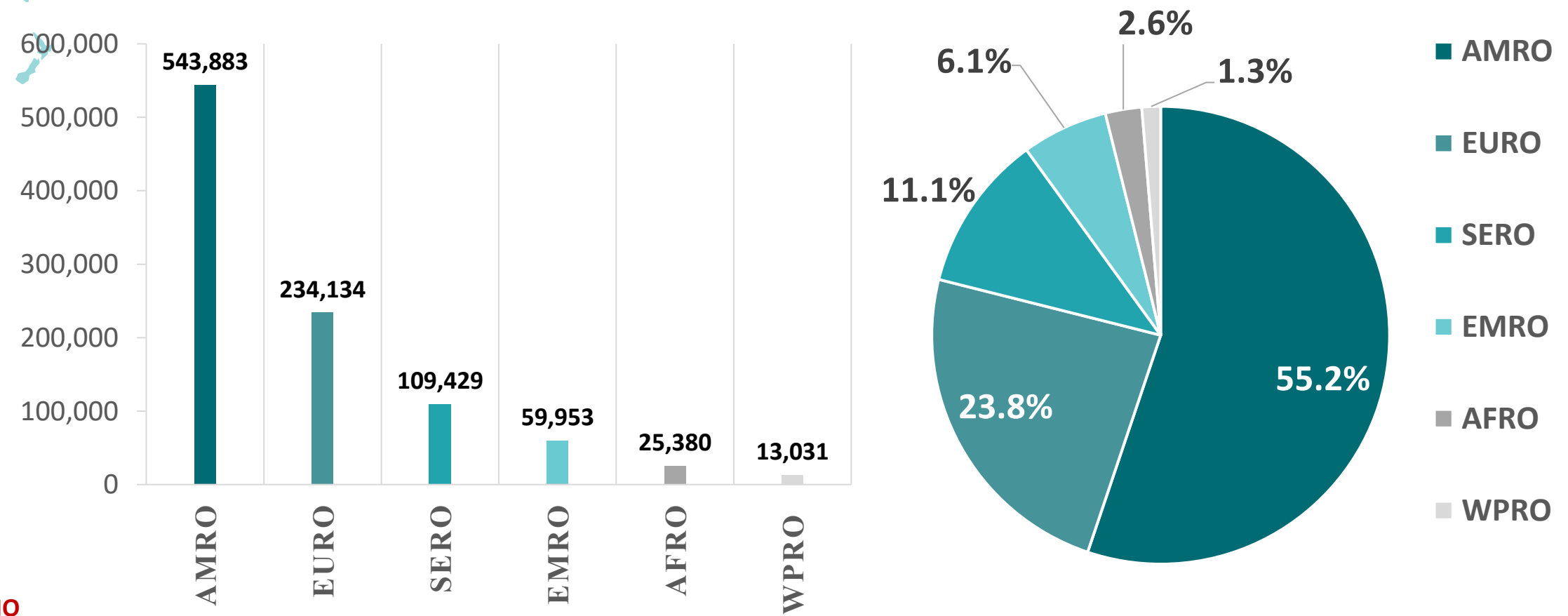
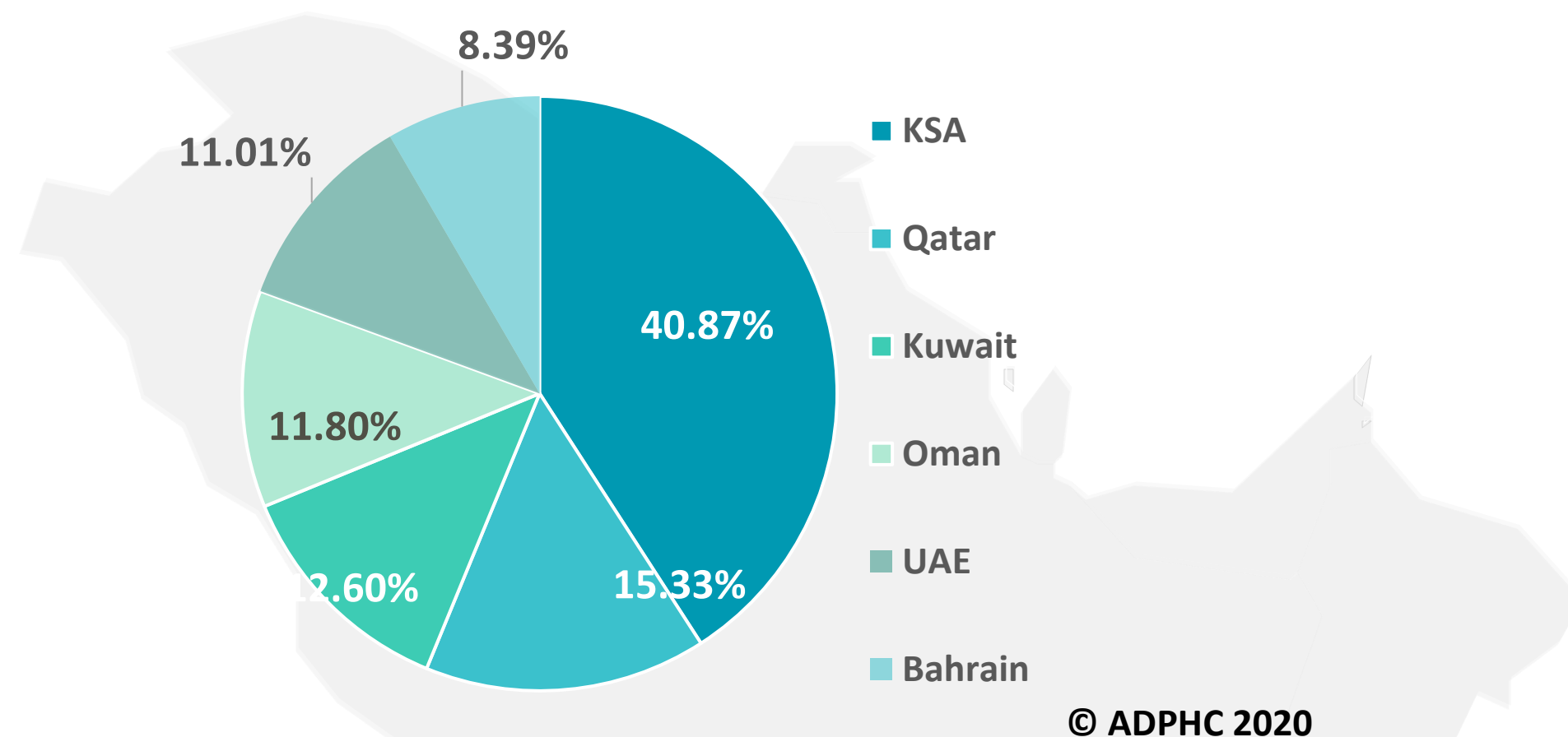
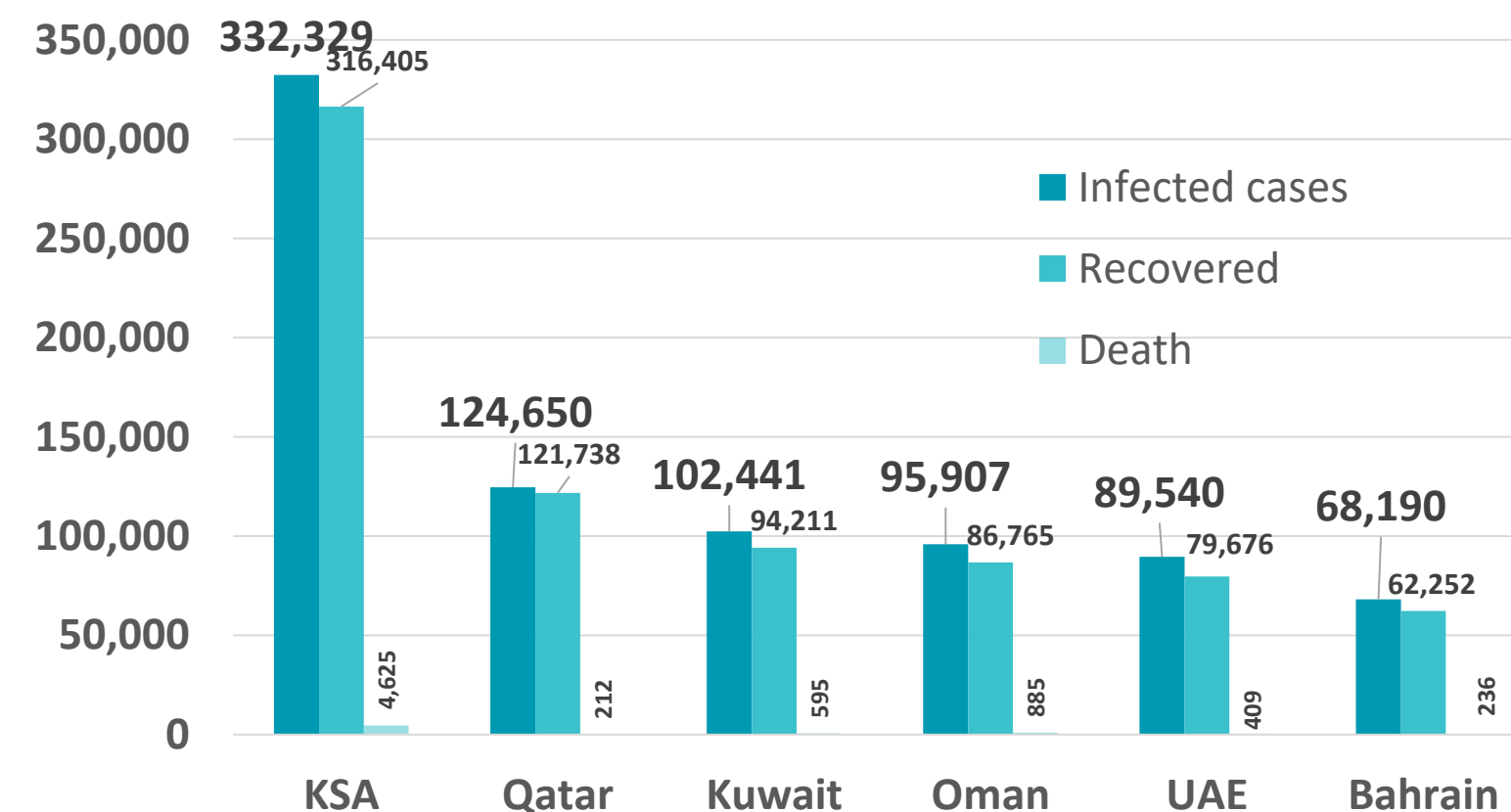


Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

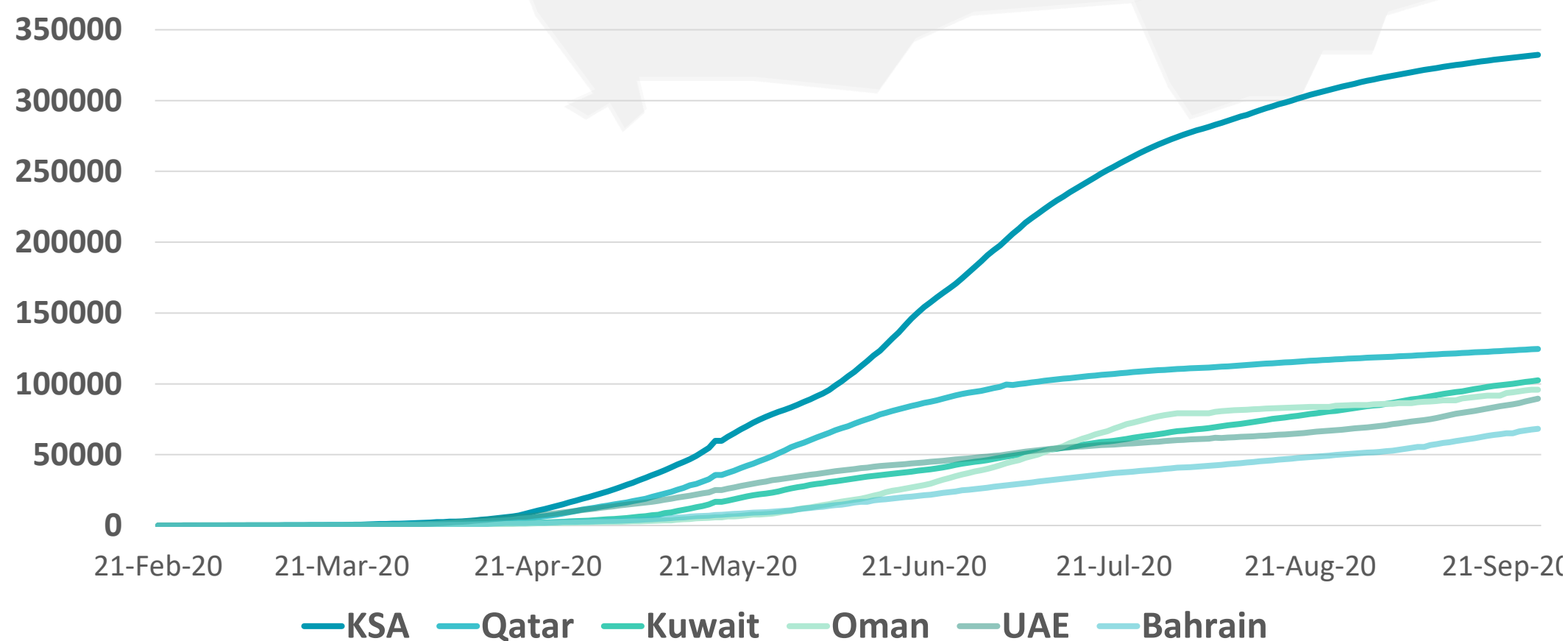
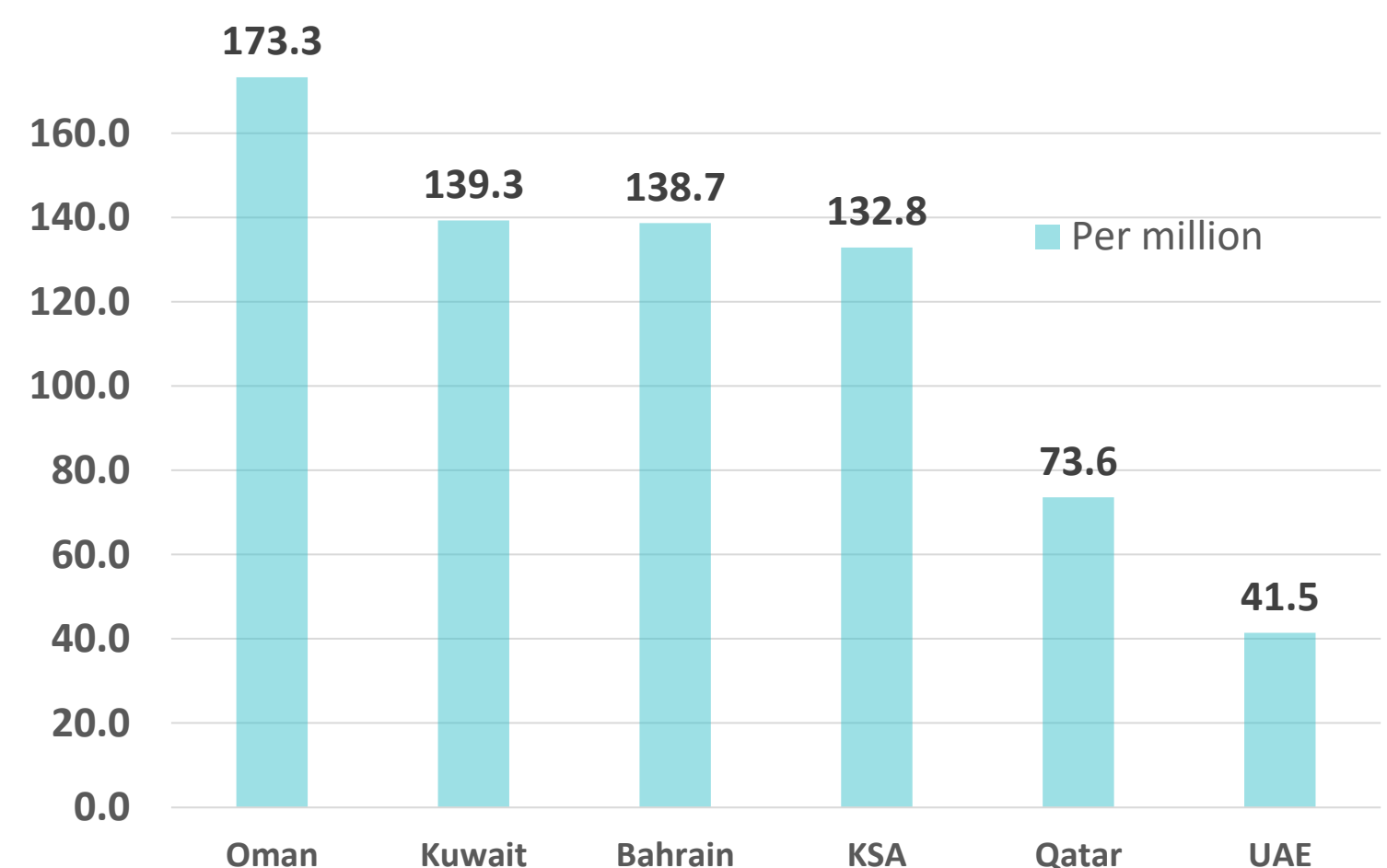
TOTAL NUMBER OF INFECTED CASES



TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS

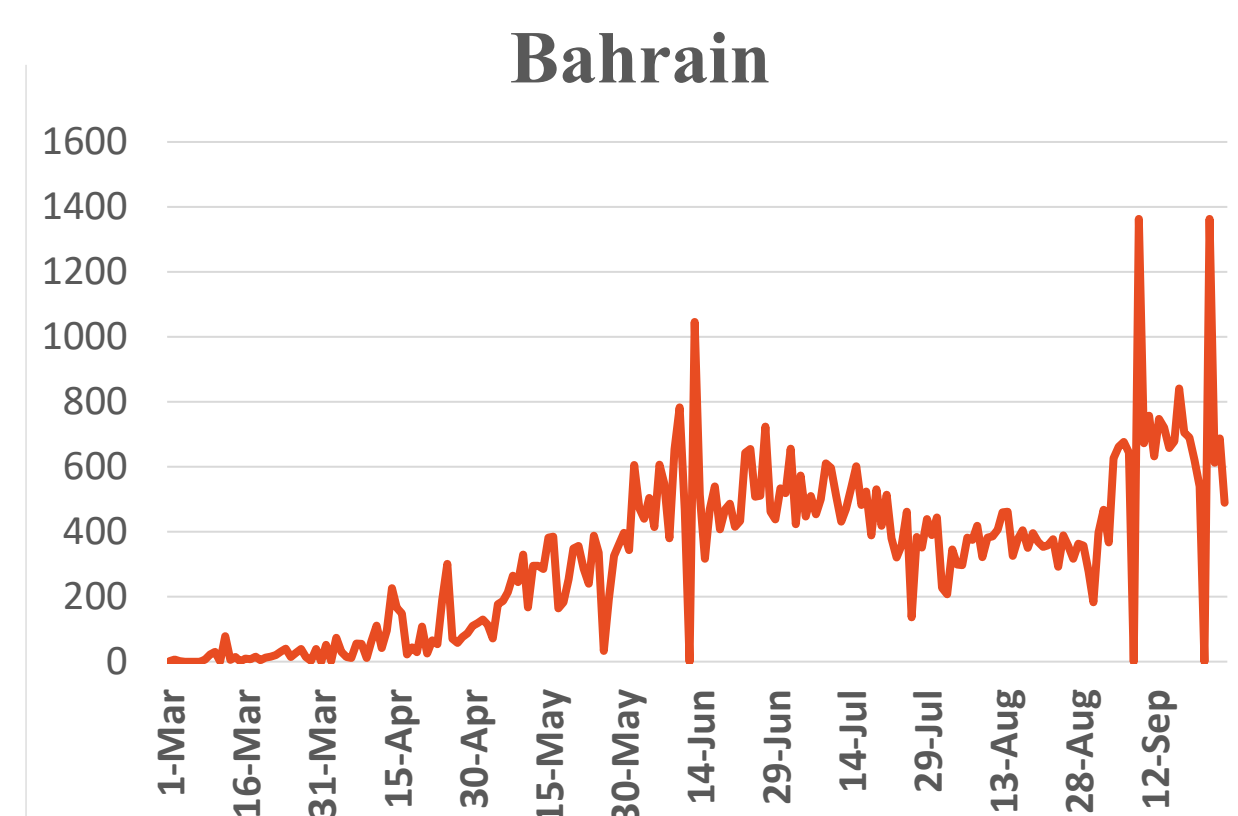
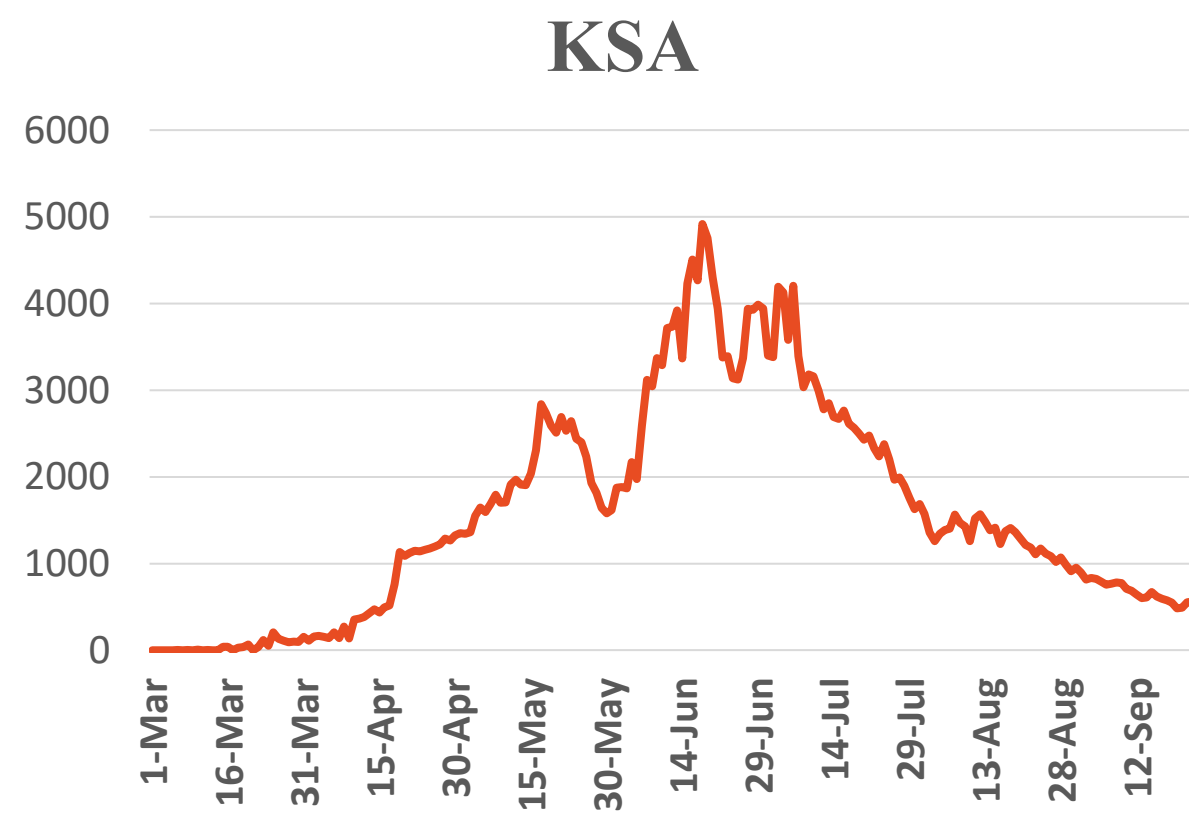
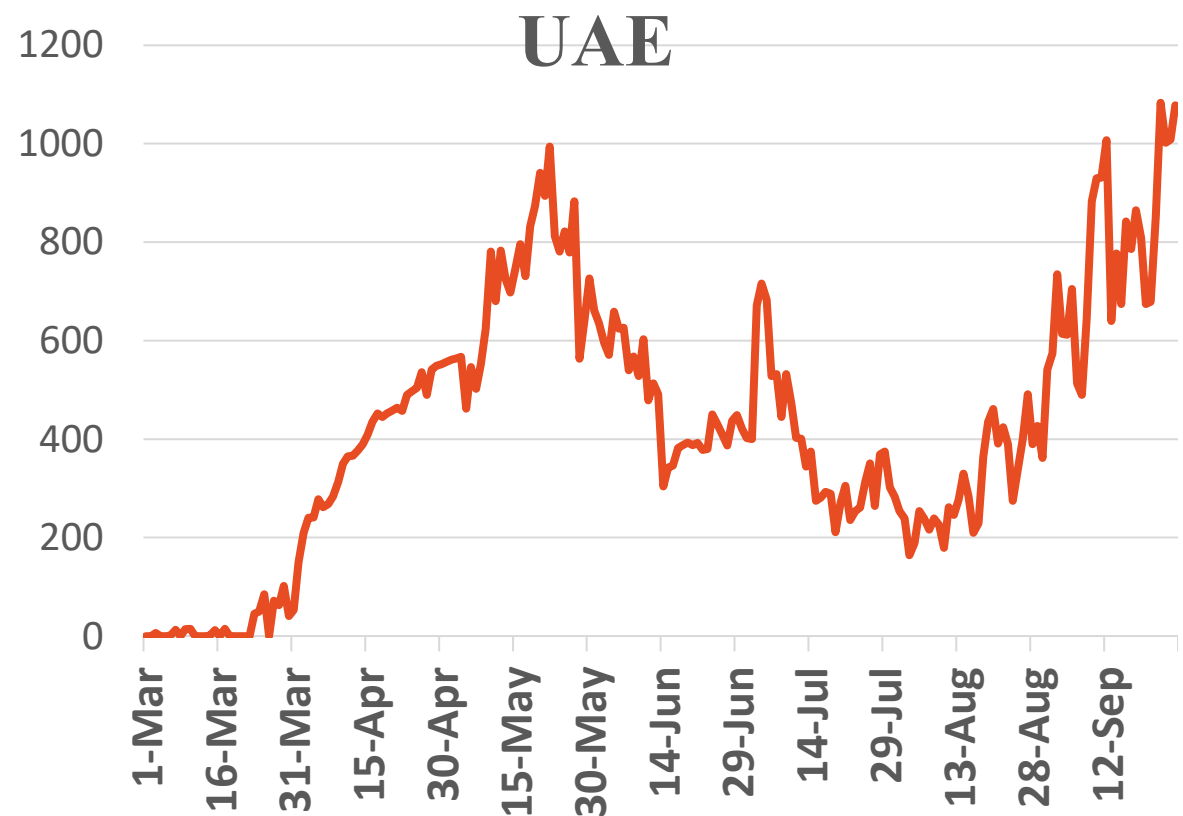


DEATHS PER MILLION



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

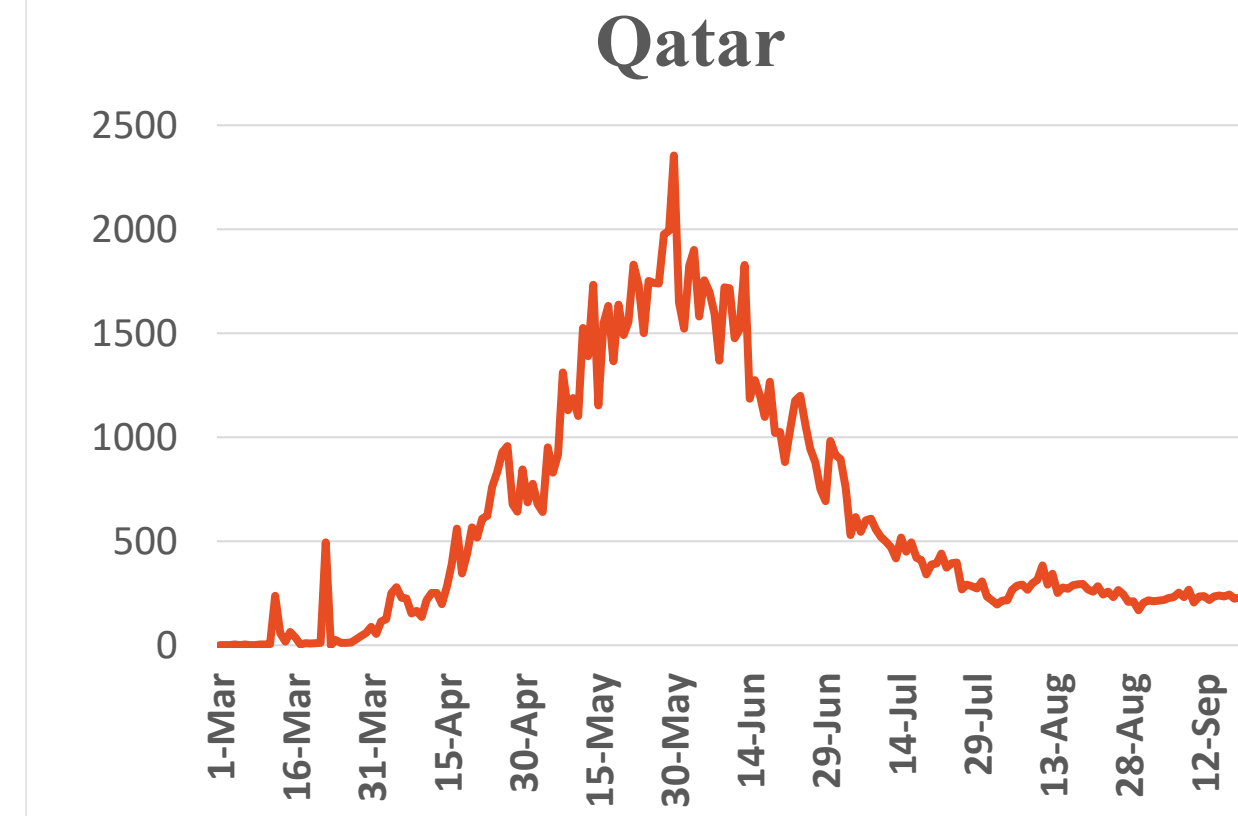
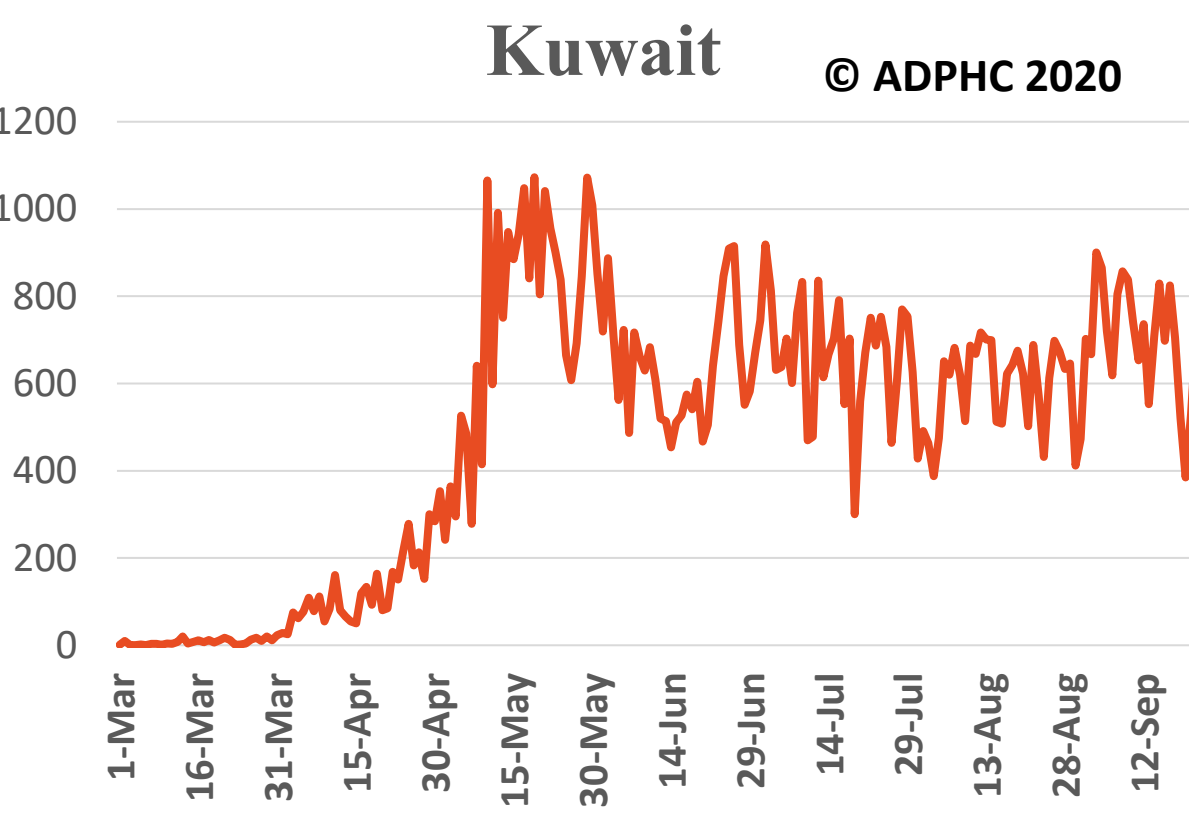
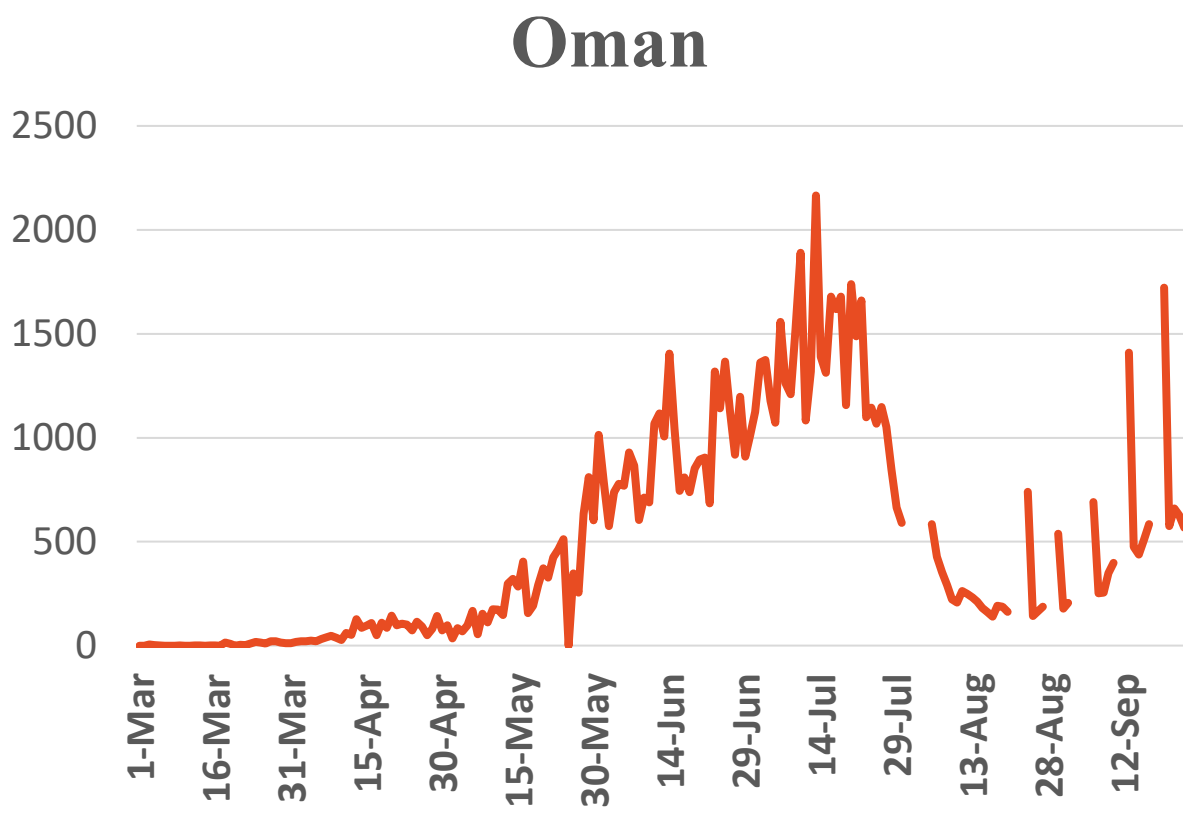
Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries



Source : National Emergency Crisis and Disaster Management Authority

Source : KSA ministry of health

Source :WHO



Source :Oman ministry of health

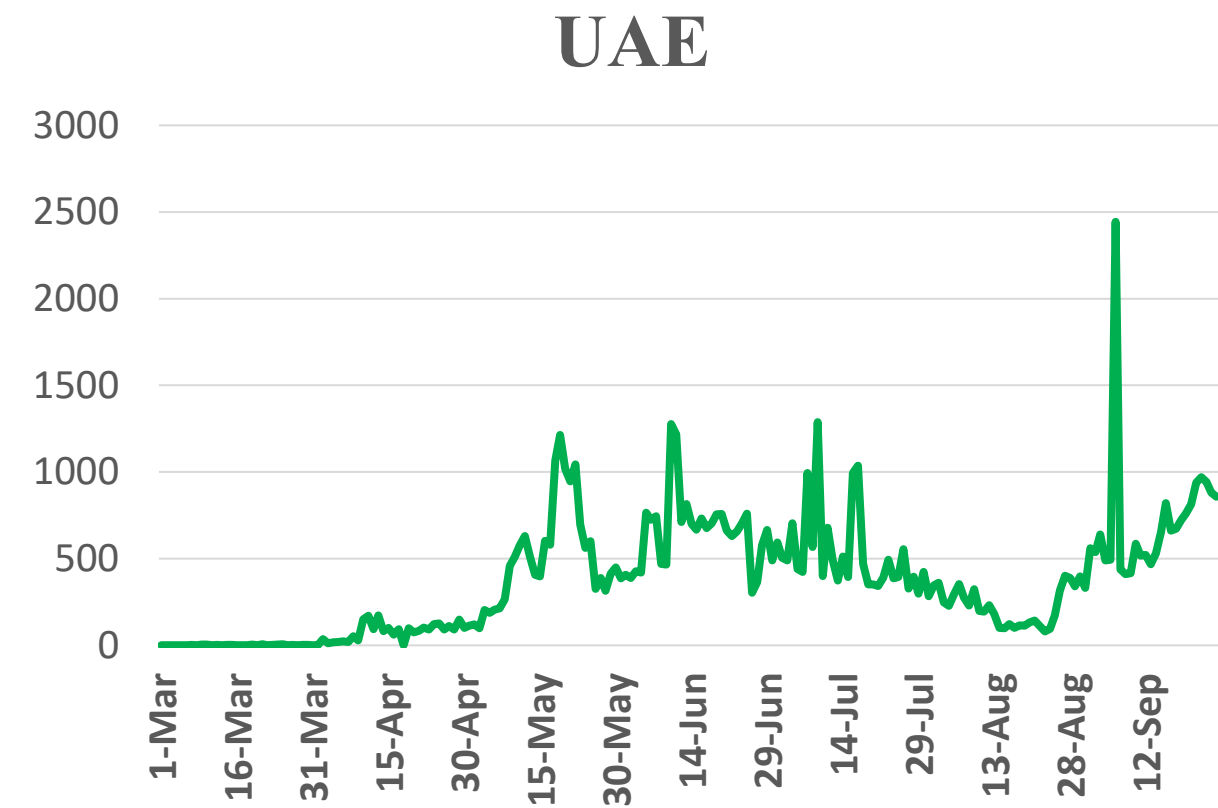
Source : Kuwait ministry of health

Source : Qatar ministry of health

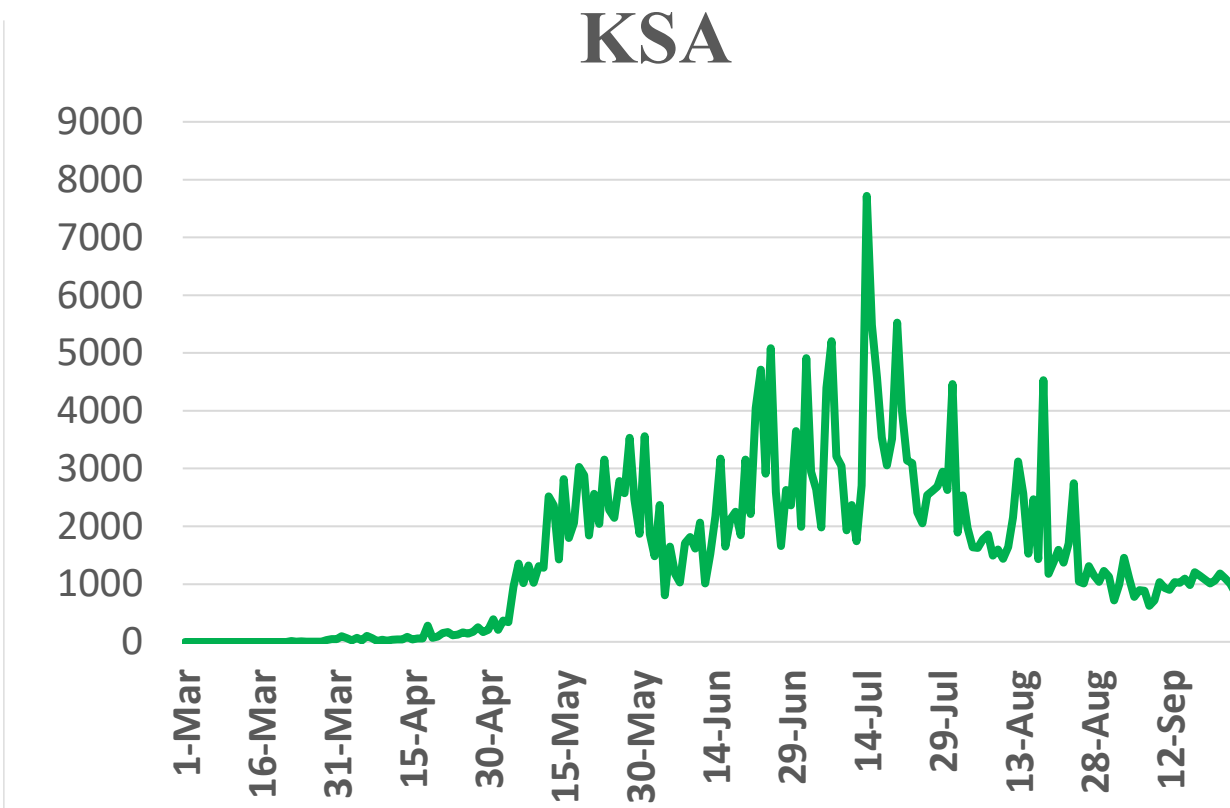
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*No announced statistic data on weekends and official holidays.



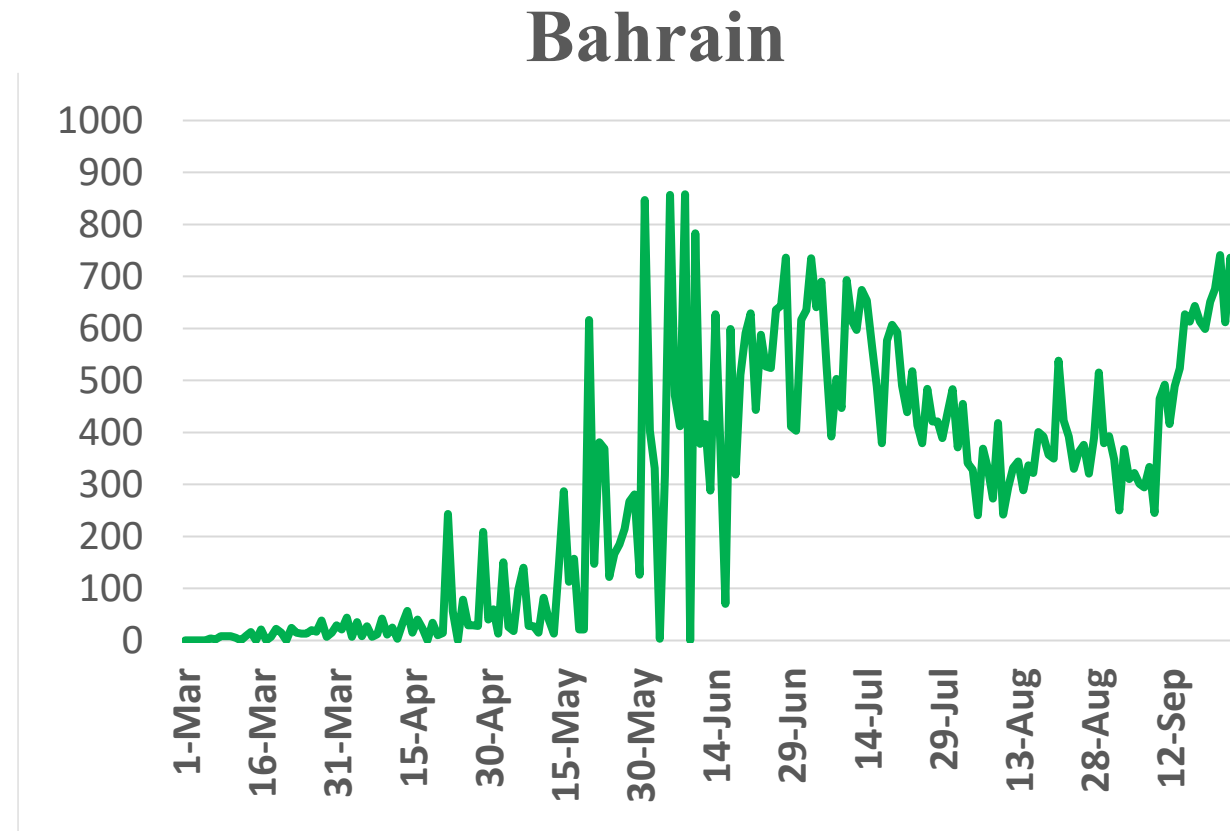
Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries



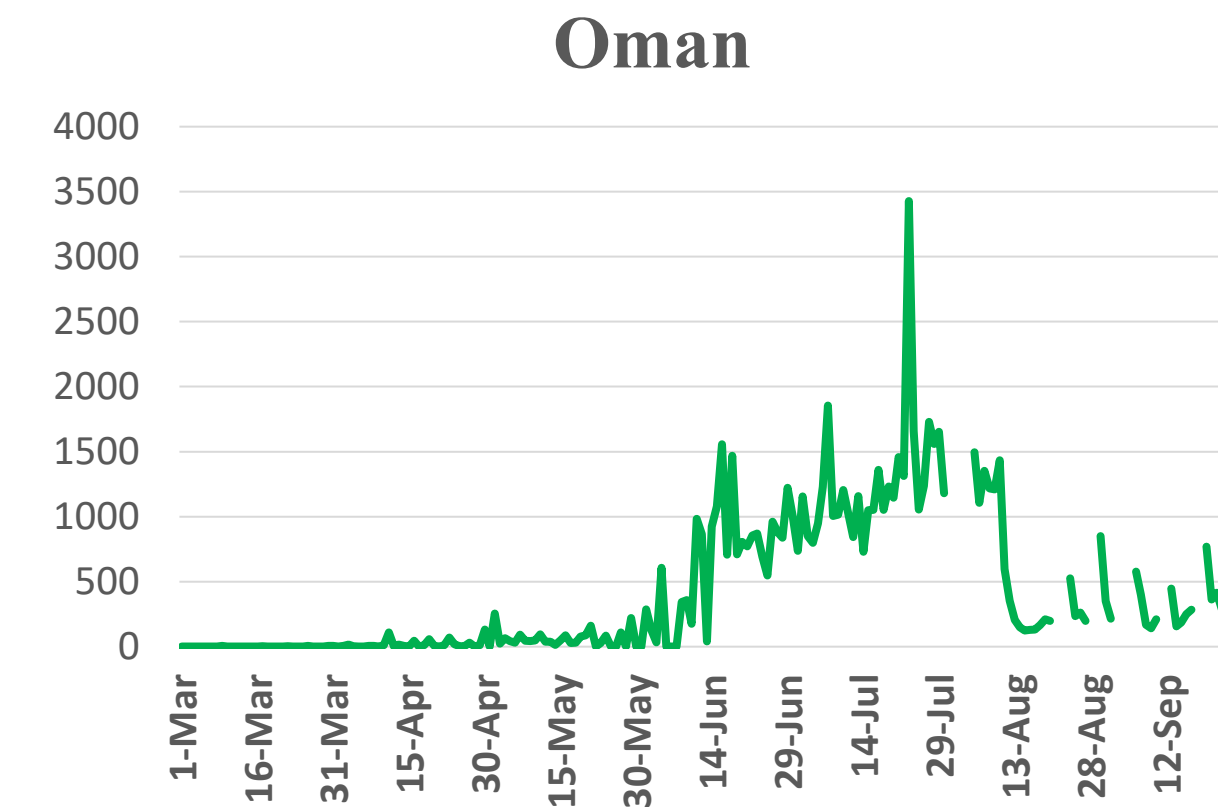
Source : National Emergency Crisis and Disaster Management Authority



Source : KSA ministry of health

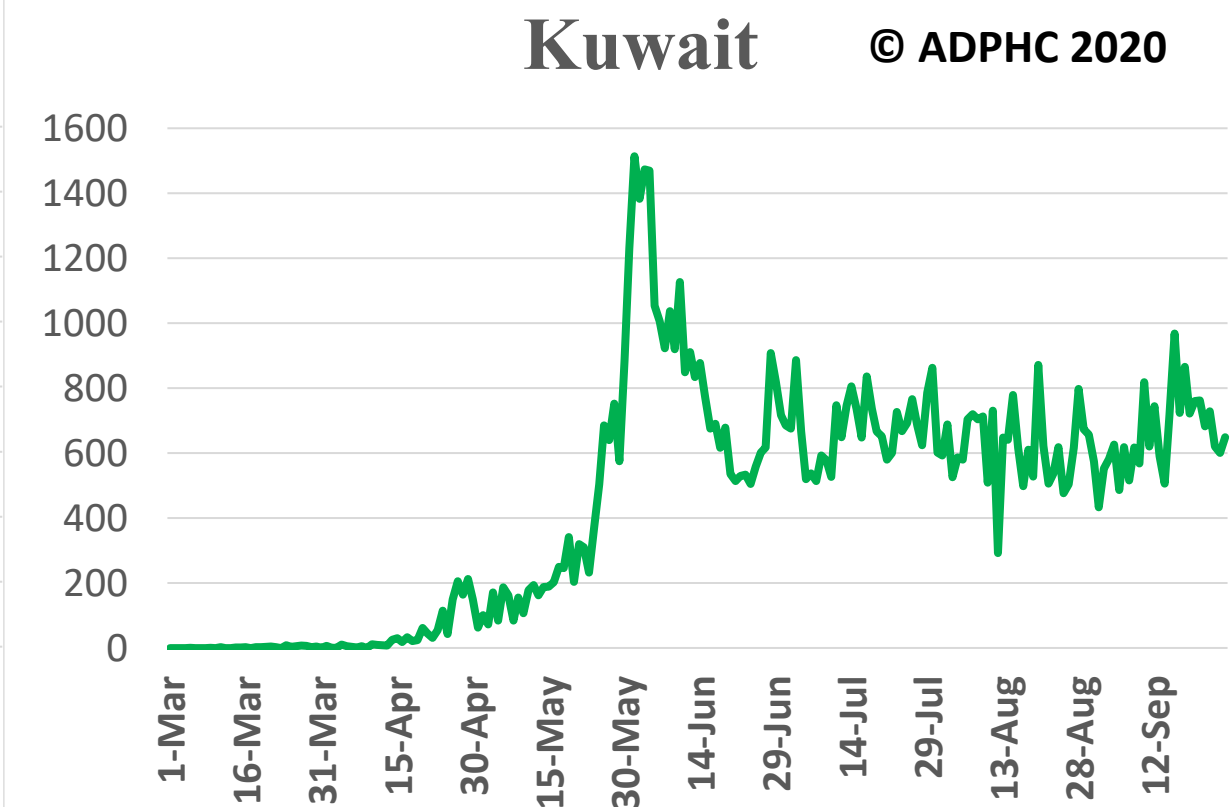


Source : Bahrain ministry of health



Source : Oman ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August, 2, 4, 5,11,12,18,19,25 & 26 September



Source : Kuwait ministry of health



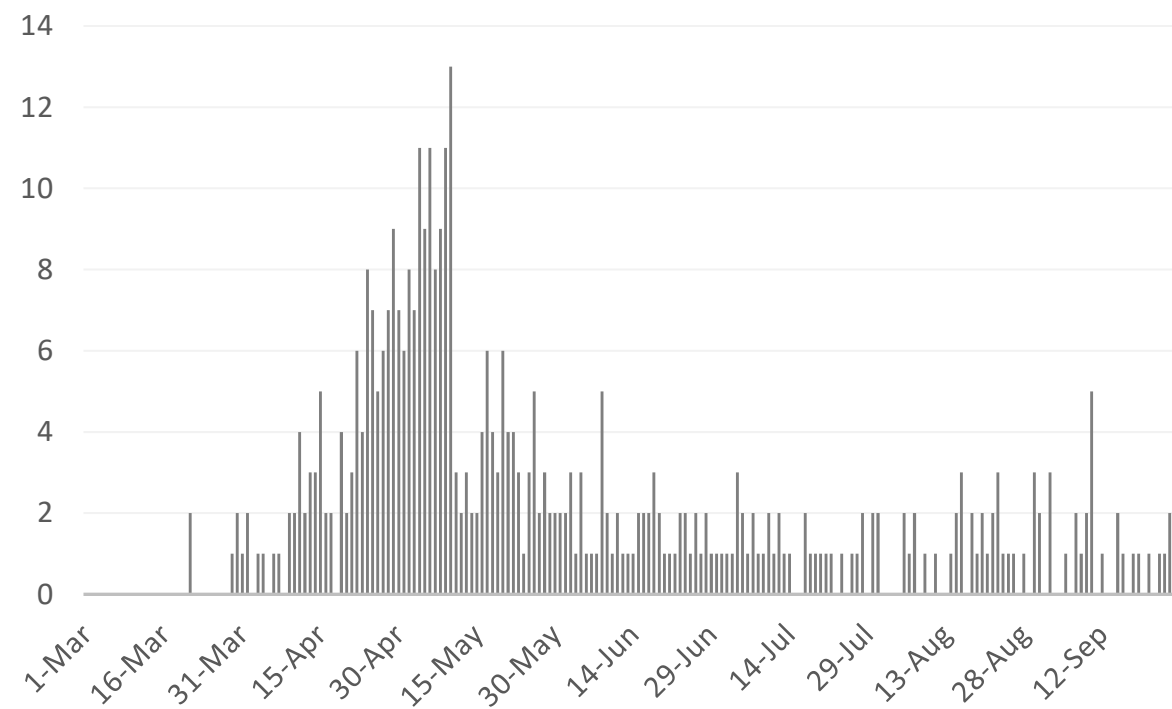
Source : Qatar ministry of health

*No announced statistic data on weekends and official holidays.



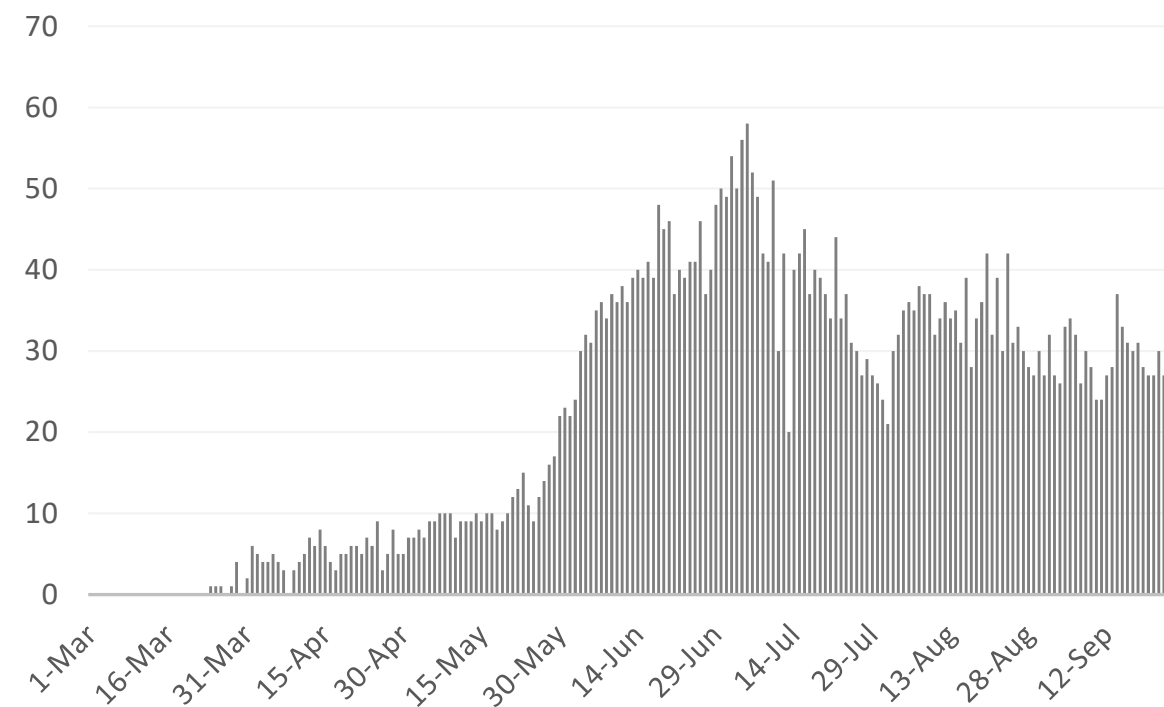
Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

UAE



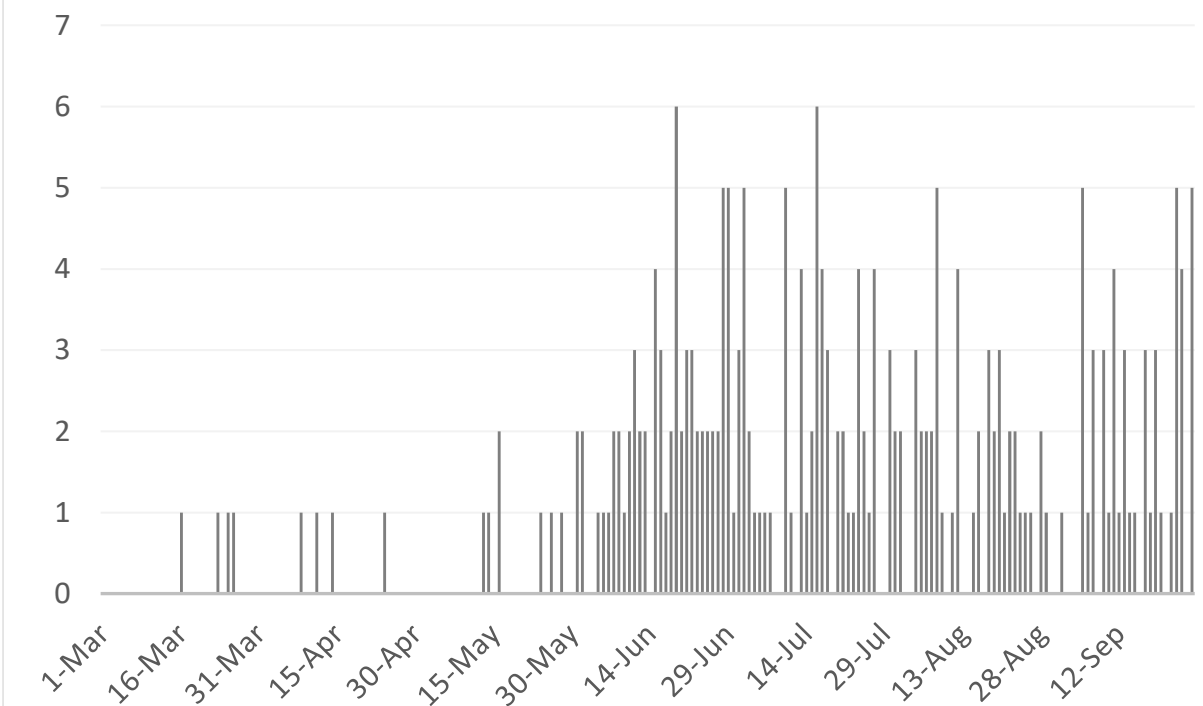
Source : National Emergency Crisis and Disaster Management Authority

KSA



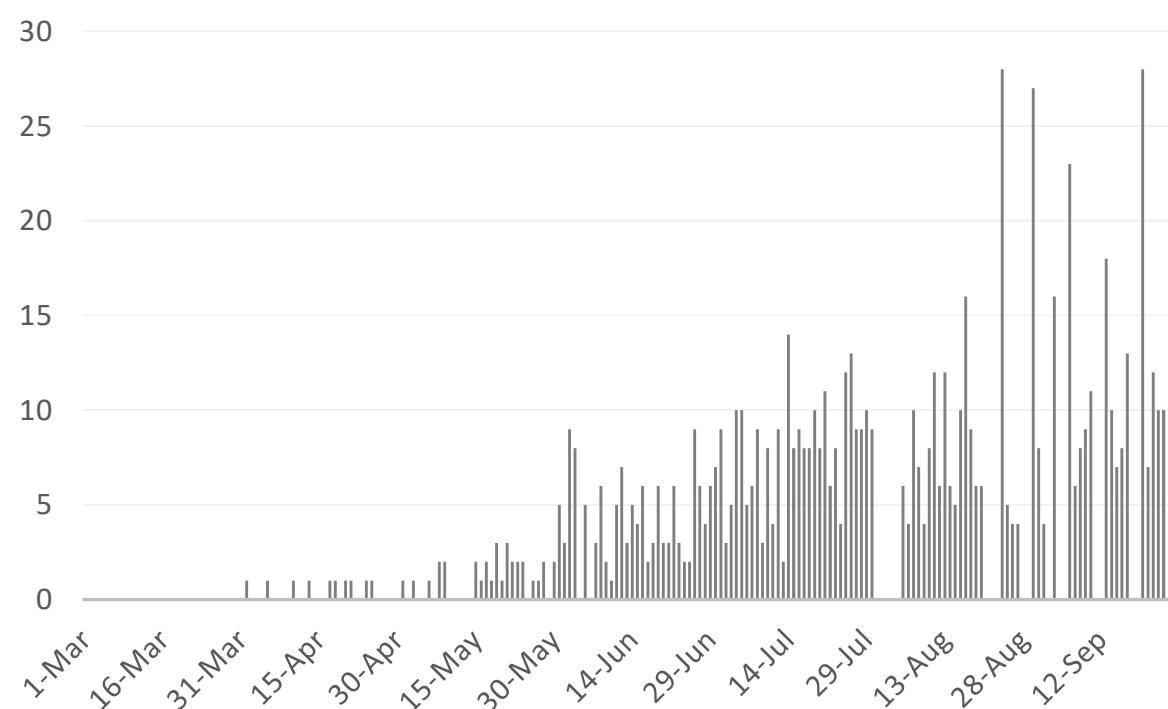
Source : KSA ministry of health

Bahrain



Source :WHO

Oman



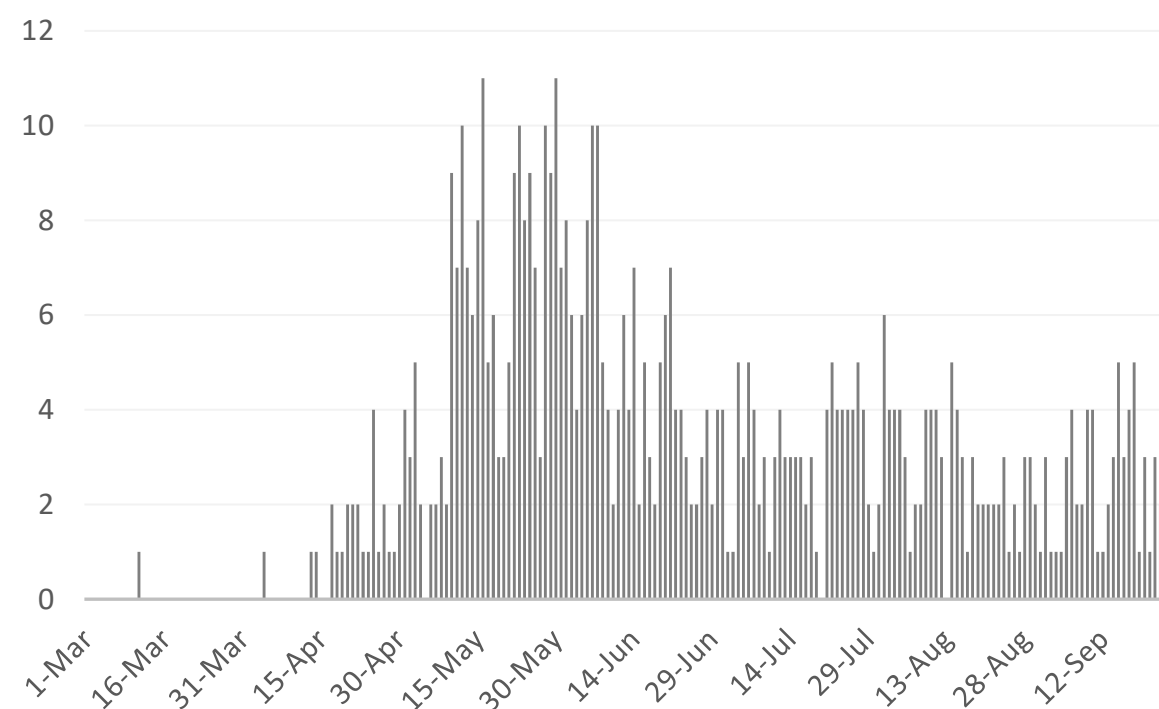
Source :Oman ministry of health

*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.

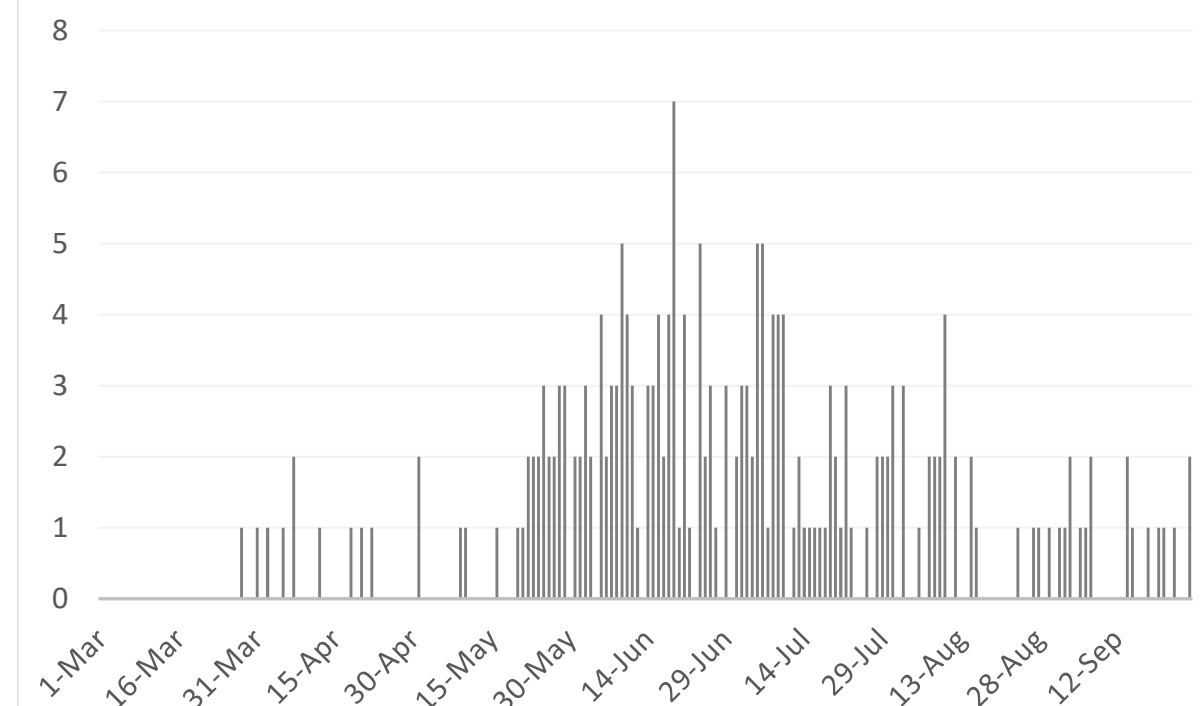
Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health



Article 1

A History of Herd Immunity

Published

September 19, 2020 [THE LANCET](#)

- In the United States, the term ‘herd immunity’ seems to have first appeared in the work of livestock veterinarians concerned about ‘contagious abortion’ in cattle and sheep. In 1910, it became the leading contagious threat to cattle. Veterinarian George Potter in 1916 envisioned herd immunity. He described that abortion disease can be compared to a fire, which, if new fuel is not added, soon dies down. Bacteriologist WWC Topley (1919) reported experimental epidemics that he created in groups of mice. Unless there was a constant influx of susceptible mice, the rising prevalence of immune individuals would end the epidemic. In 1923, he and his colleague reported this phenomenon as herd immunity.
- Pathologist Sheldon Dudley (1923) became aware of epidemics of diphtheria at Royal Hospital School in Greenwich, United Kingdom. In an article in Lancet (1924), he applied herd immunity to humans. In another article (1929), he reported, “I will now consider the community or the herd...Nations may be divided into urban or rural herds. Or we can contrast the shoregoing herd with the sailor herd, or herds dwelling in hospitals can be compared with those who live in mental hospitals.”
- During COVID-19 pandemic, public face the same issue that Sheldon Dudley faced (1923) with diphtheria – whether a contagious infection can be controlled through social distancing and hygiene alone without a vaccine. Research reports in June and July 2020 have created doubt on the prospects for herd immunity. Some researchers argued that antibodies are not required as SARS-CoV-2 might induce T-cell immunity. Others hypothesized that if most susceptible members of a community are infected first, then herd immunity might be achieved after exposure of just 20% of the population.



Article 2

Published

Analysis of Drug Test Results Before and After the US Declaration of a National Emergency Concerning the COVID-19 Outbreak

September 18, 2020 [JAMA](#)

- In the United States, a cross-sectional study of urine drug test results was conducted (from November 14, 2019, to July 10, 2020) from adult patients diagnosed with or at risk of substance use disorders. Individuals reportedly prescribed cocaine, fentanyl, or methamphetamine were excluded from the study.
- A random sampling of 75,000 specimens were selected before COVID-19 (November 14, 2019, to March 12, 2020) and during COVID-19 (March 13, 2020, to July 10, 2020); this period was based on COVID-19 being declared a national emergency on March 13, 2020.
- The proportion of specimens testing positive during the COVID-19 period increased from 3.59% to 4.76% for cocaine [adjusted OR 1.19; $p < .001$], from 3.80% to 7.32% for fentanyl [OR-1.67; $p < .001$], from 1.29% to 2.09% for heroin [AOR-1.33; $p = .002$], and from 5.89% to 8.16% for methamphetamine [AOR-1.23; $p < .001$] as compared with the period before COVID-19. Except for South Atlantic and West North Central, all US Census regions had significant increases in the adjusted OR for at least one drug.
- The results demonstrated that testing positive in a population diagnosed with or at risk of substance use disorders increased significantly for illicit cocaine, fentanyl, heroin, and methamphetamine from four months before the national emergency declaration to four months after the declaration (Table 2).





Continued

Table 2. Logistic Regression Analysis for Populations With Positive Test Results for Selected Drugs Before vs During the COVID-19 Pandemic

US Census region	Cocaine		Fentanyl		Heroin		Methamphetamine	
	Adjusted OR (95% CI) ^a	P value ^b	Adjusted OR (95% CI) ^a	P value ^b	Adjusted OR (95% CI) ^a	P value ^b	Adjusted OR (95% CI) ^a	P value ^b
East North Central ^c	1.31 (1.14-1.51)	<.001	1.93 (1.70-2.20)	<.001	1.59 (1.18-2.14)	<.001	1.34 (1.16-1.56)	<.001
East South Central ^d	1.20 (0.91-1.58)	.07	1.99 (1.62-2.45)	<.001	1.58 (1.01-2.48)	.04	1.26 (1.05-1.53)	.002
Mid-Atlantic ^e	1.40 (0.97-2.03)	.12	2.04 (1.22-3.39)	<.001	2.36 (0.71-7.81)	.53	1.42 (0.87-2.32)	.55
Mountain ^f	1.31 (0.92-1.86)	.42	1.65 (1.25-2.19)	<.001	1.50 (1.04-2.15)	.01	1.51 (1.25-1.82)	<.001
New England ^g	1.27 (0.71-2.27)	.99	1.86 (1.02-3.39)	.03	0.89 (0.10-8.00)	>.99	1.14 (0.52-2.51)	>.99
Pacific ^h	1.22 (0.85-1.77)	.90	1.68 (1.21-2.33)	<.001	1.44 (1.12-1.85)	<.001	1.18 (1.00-1.37)	.04
South Atlantic ⁱ	1.08 (0.84-1.38)	>.99	1.33 (1.00-1.77)	.06	0.63 (0.31-1.27)	.68	0.92 (0.68-1.24)	>.99
West North Central ^j	0.84 (0.49-1.42)	>.99	1.11 (0.77-1.62)	>.99	0.94 (0.49-1.81)	>.99	0.96 (0.74-1.25)	>.99
West South Central ^k	1.23 (0.73-2.06)	>.99	1.69 (0.87-3.30)	.34	1.99 (0.67-5.93)	.76	1.46 (1.02-2.08)	.03
Total	1.19 (1.11-1.29)	<.001	1.67 (1.55-1.81)	<.001	1.33 (1.11-1.61)	.002	1.23 (1.14-1.32)	<.001



THANK YOU

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