

SCIENTIFIC RESEARCH MONITORING ON COVID-19

11 OCTOBER 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19

(ISSUE 252)

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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Diagnosis

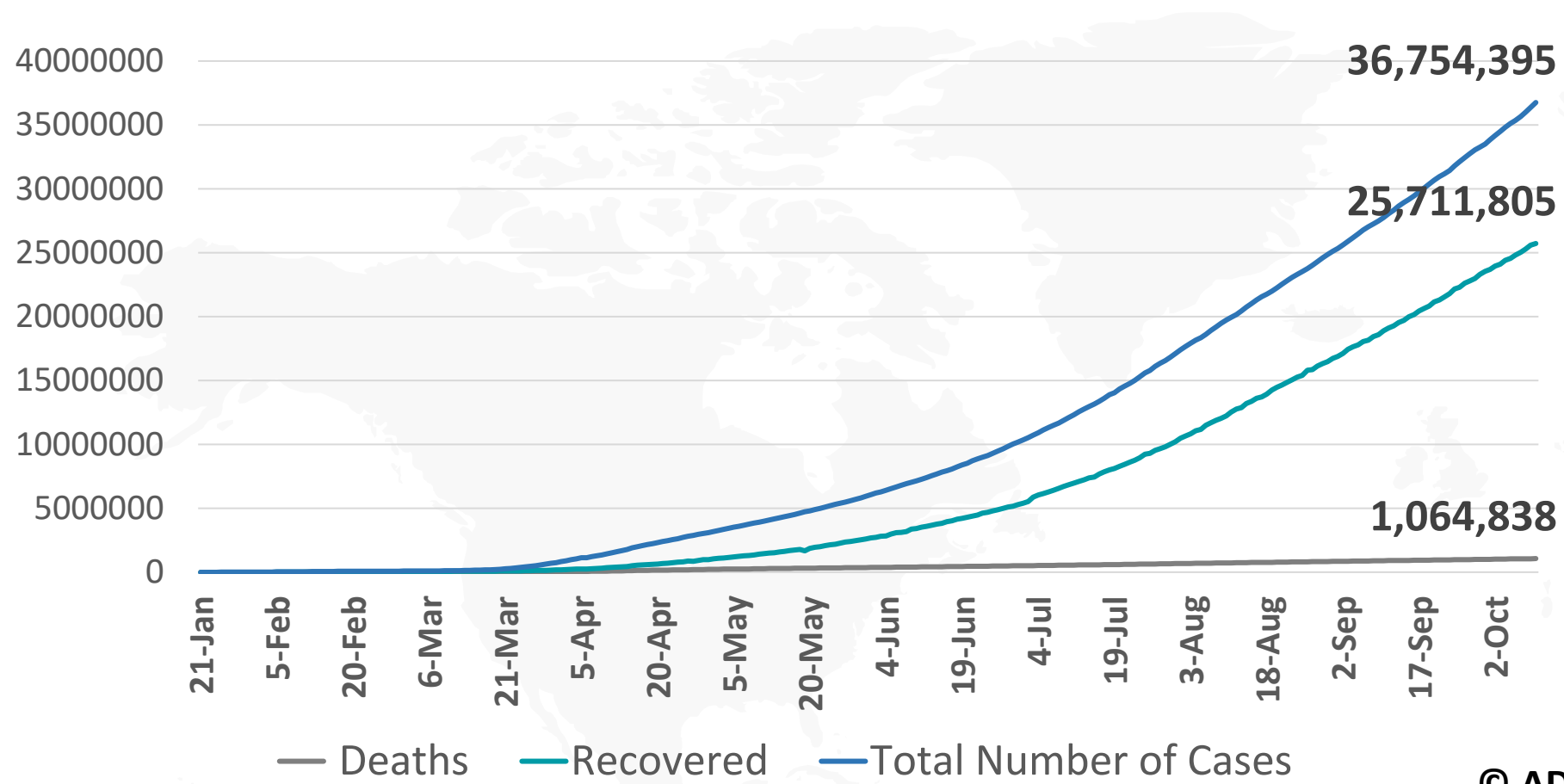
Rethinking Covid-19 Test Sensitivity - A Strategy for Containment

Transmission

Survival of SARS-CoV-2 and Influenza Virus on the Human Skin: Importance of Hand Hygiene in 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)

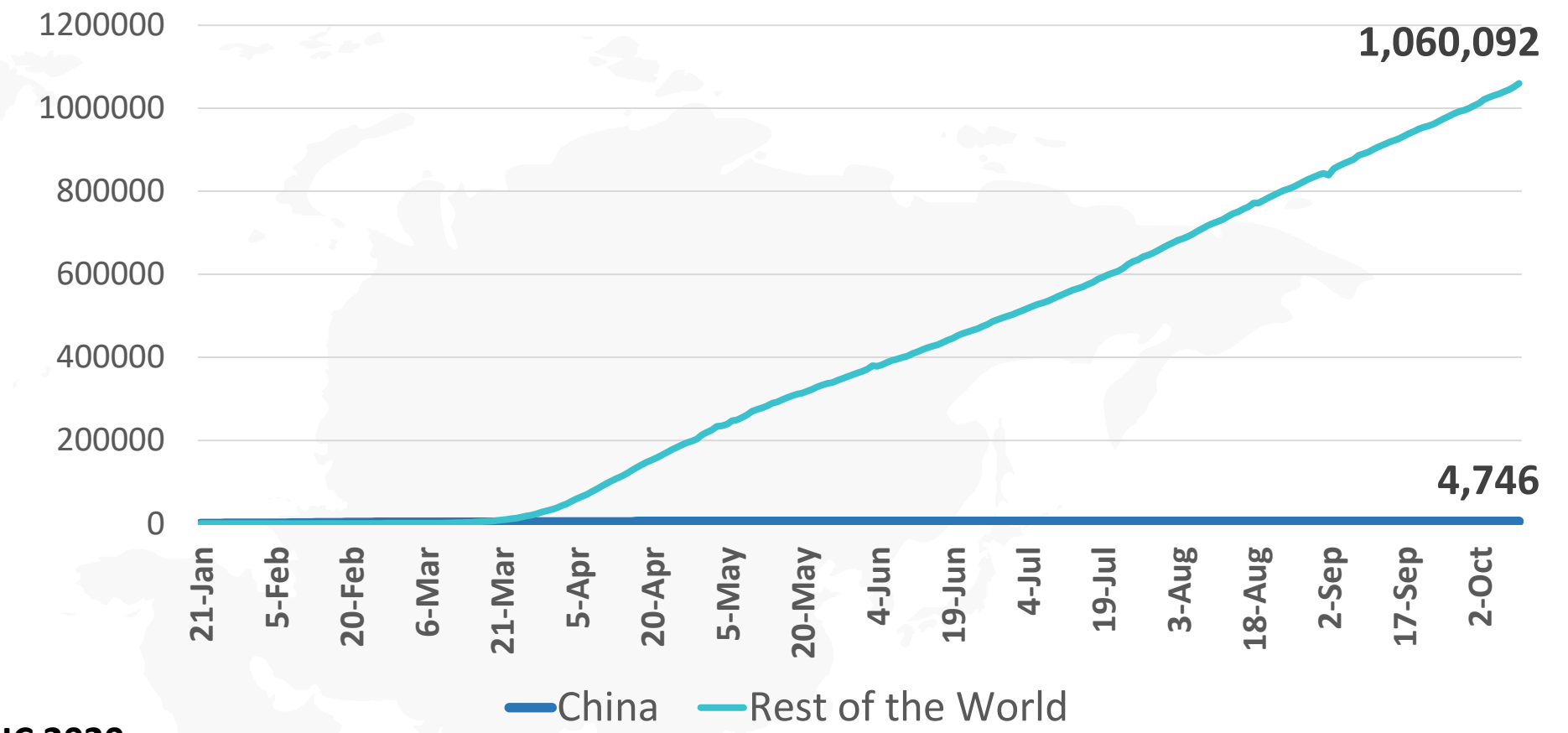


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

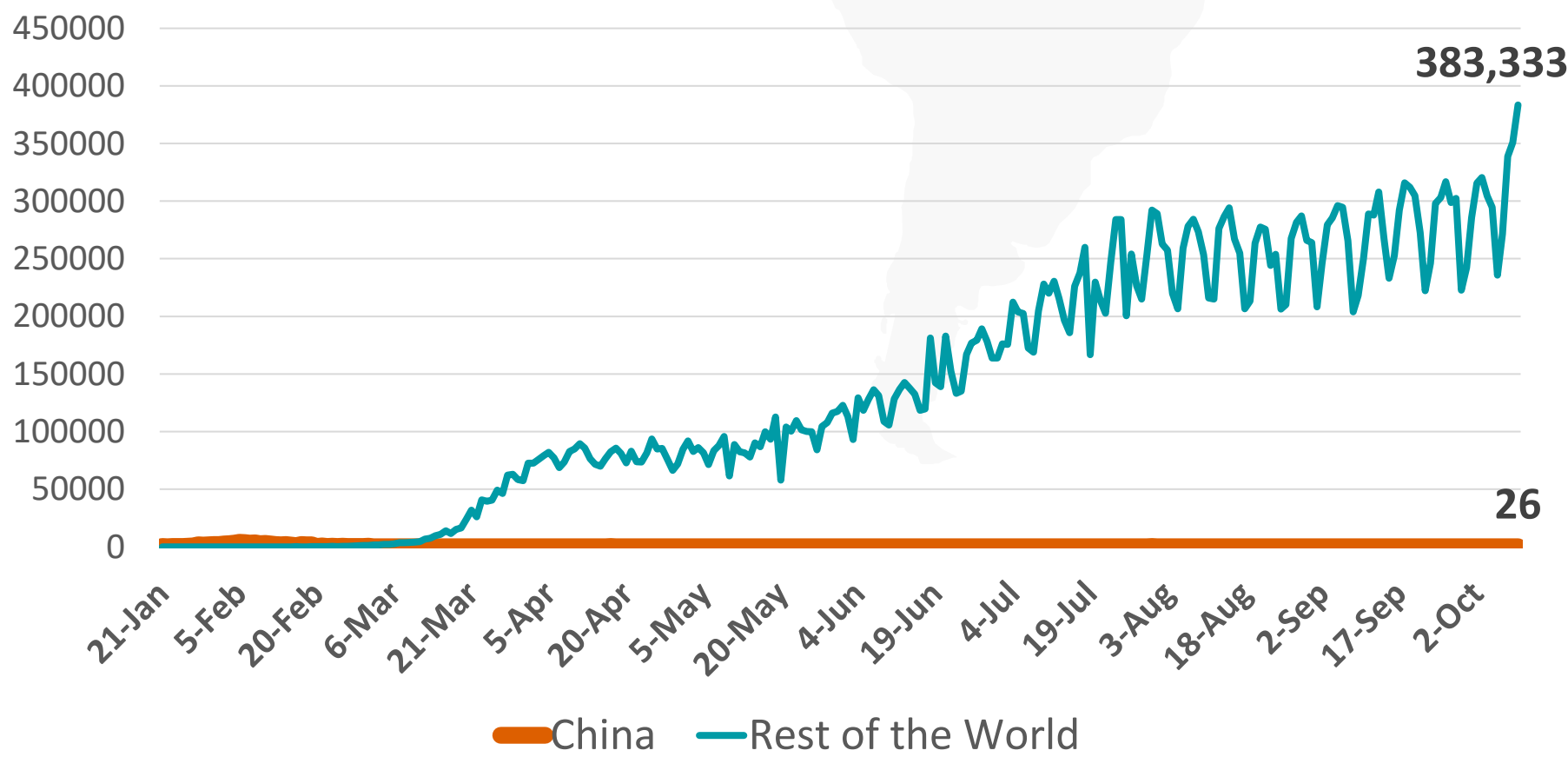


Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)

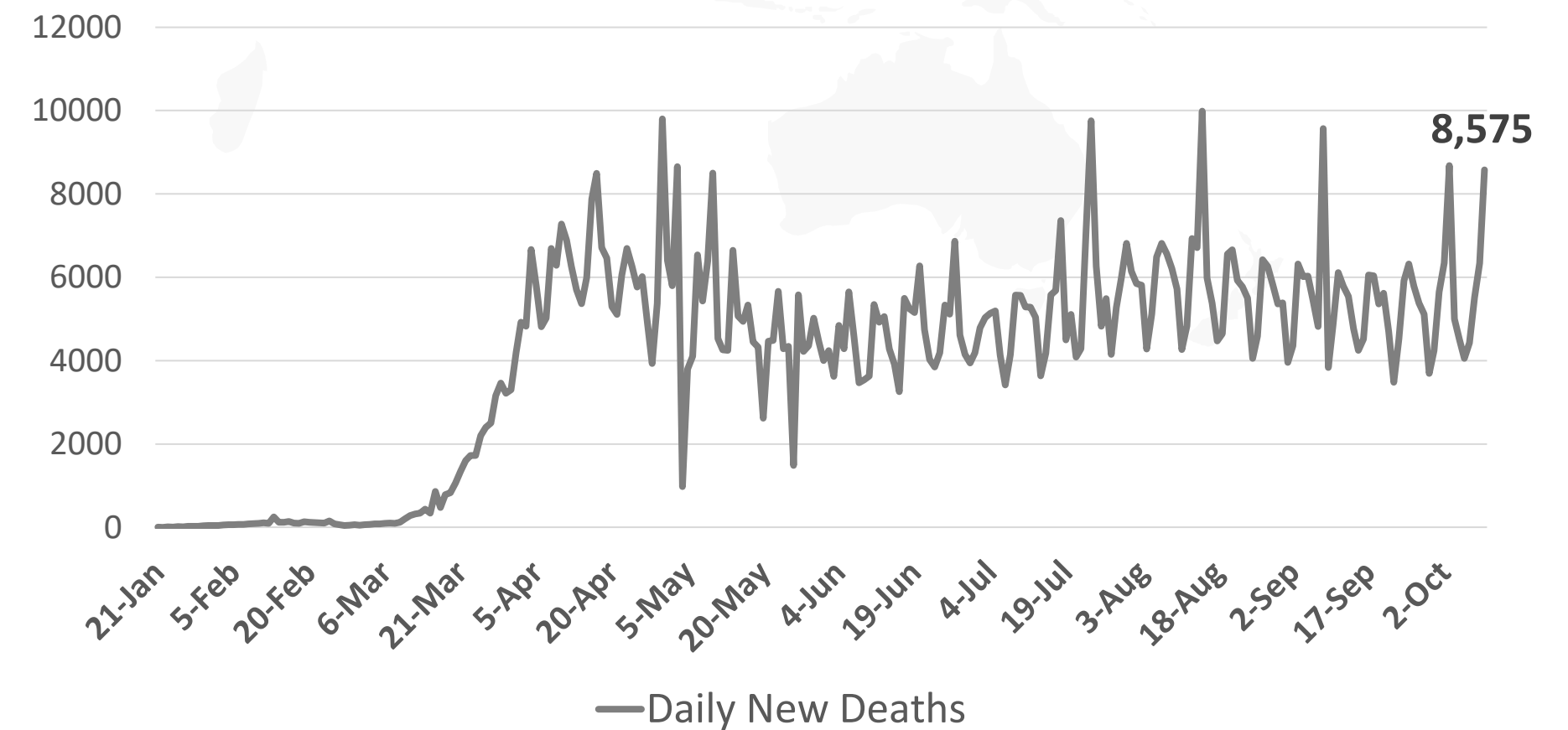
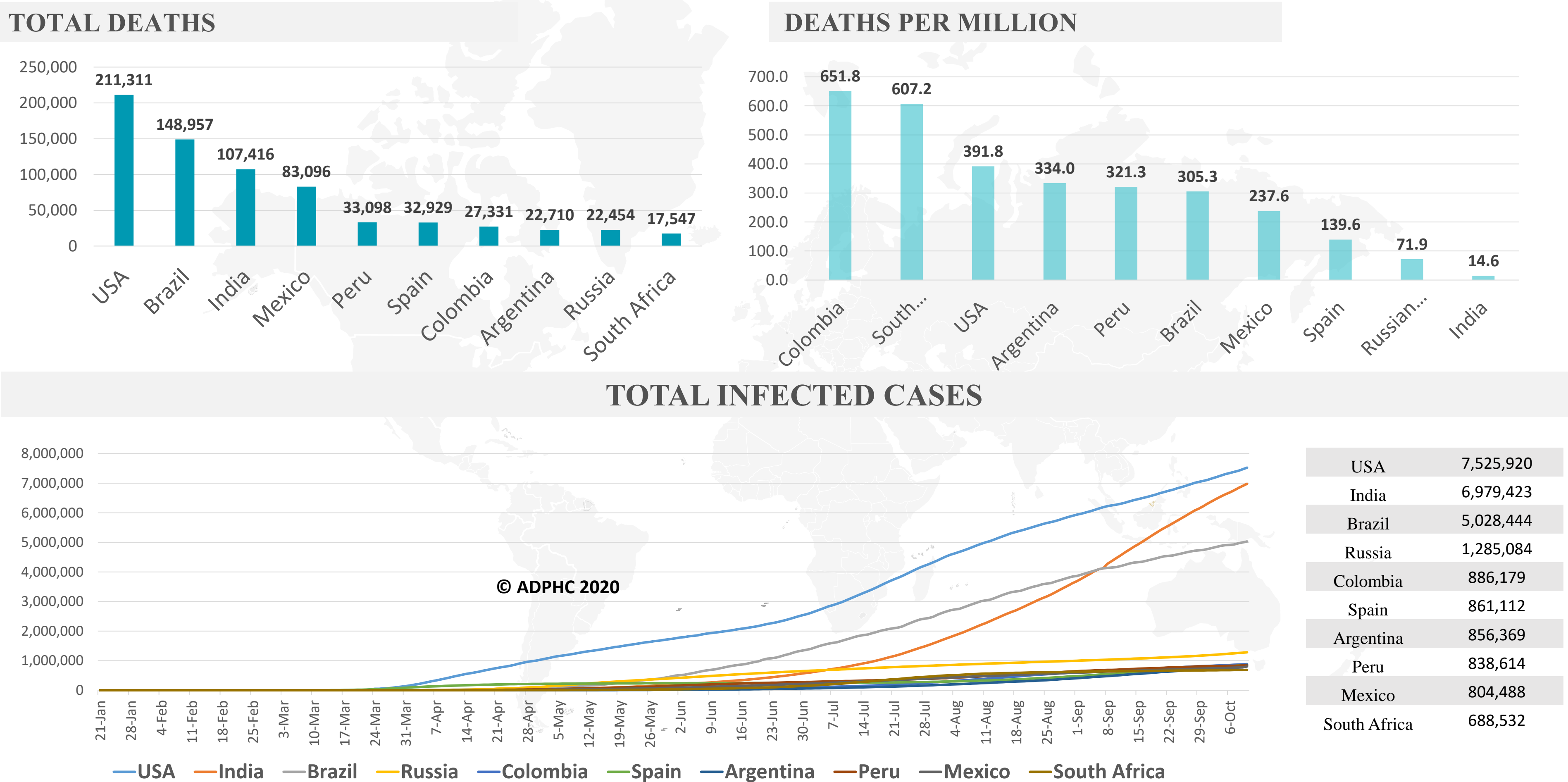


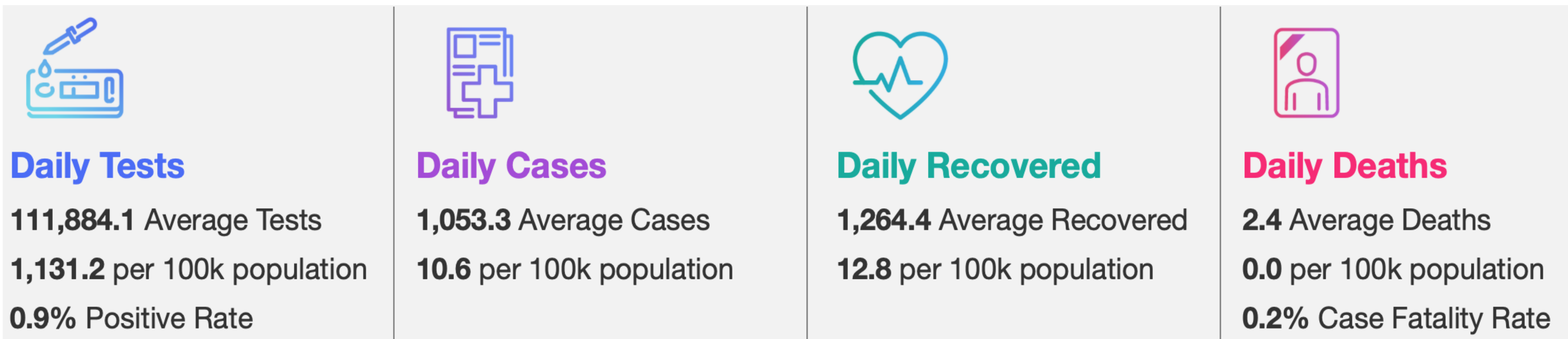
Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19



USA	7,525,920
India	6,979,423
Brazil	5,028,444
Russia	1,285,084
Colombia	886,179
Spain	861,112
Argentina	856,369
Peru	838,614
Mexico	804,488
South Africa	688,532



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

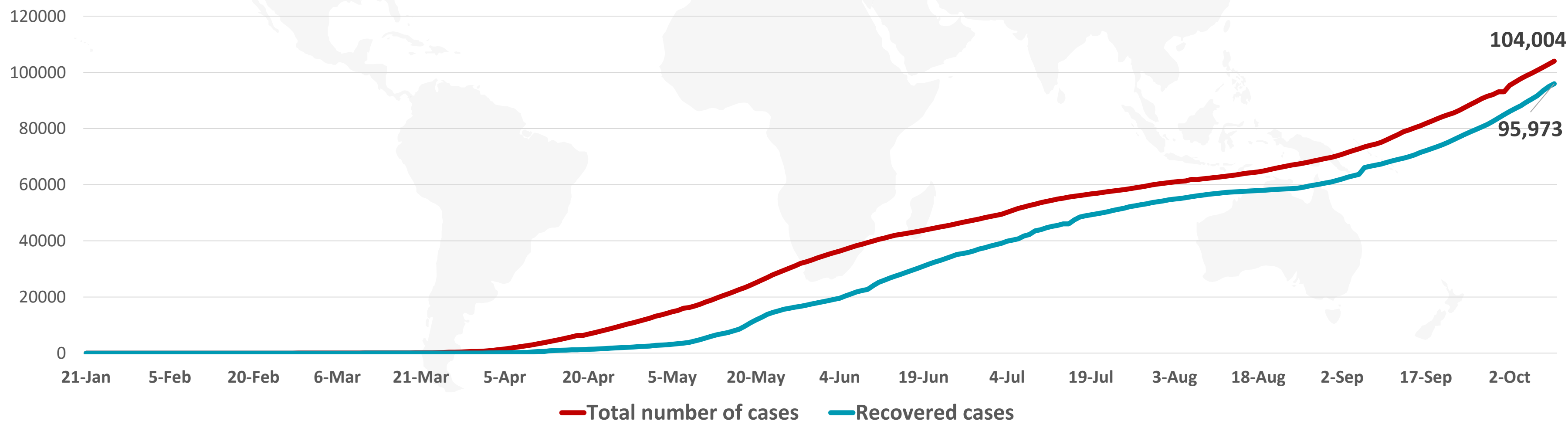


Figure 7A : Global Distribution of COVID-19 Cases

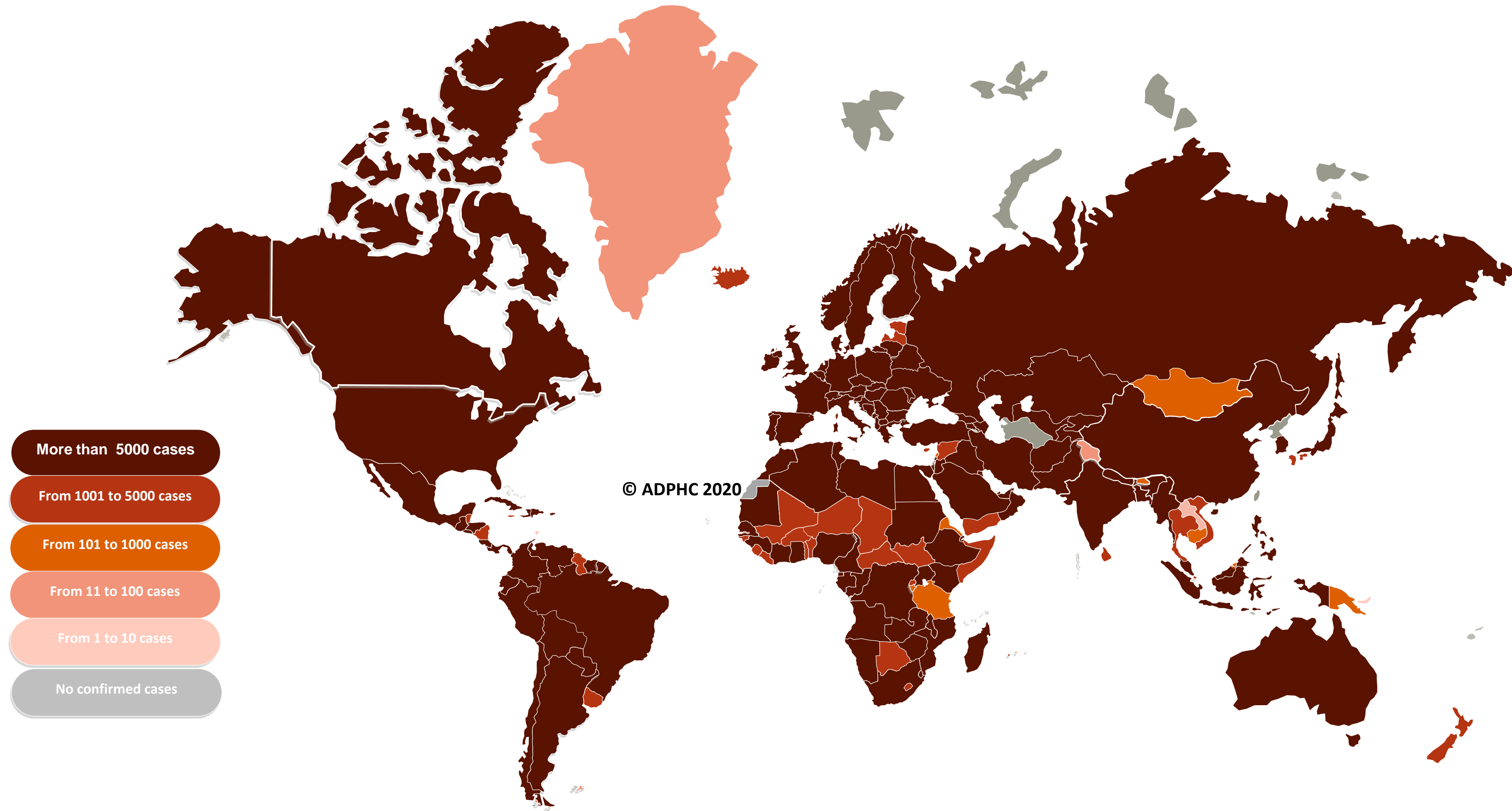
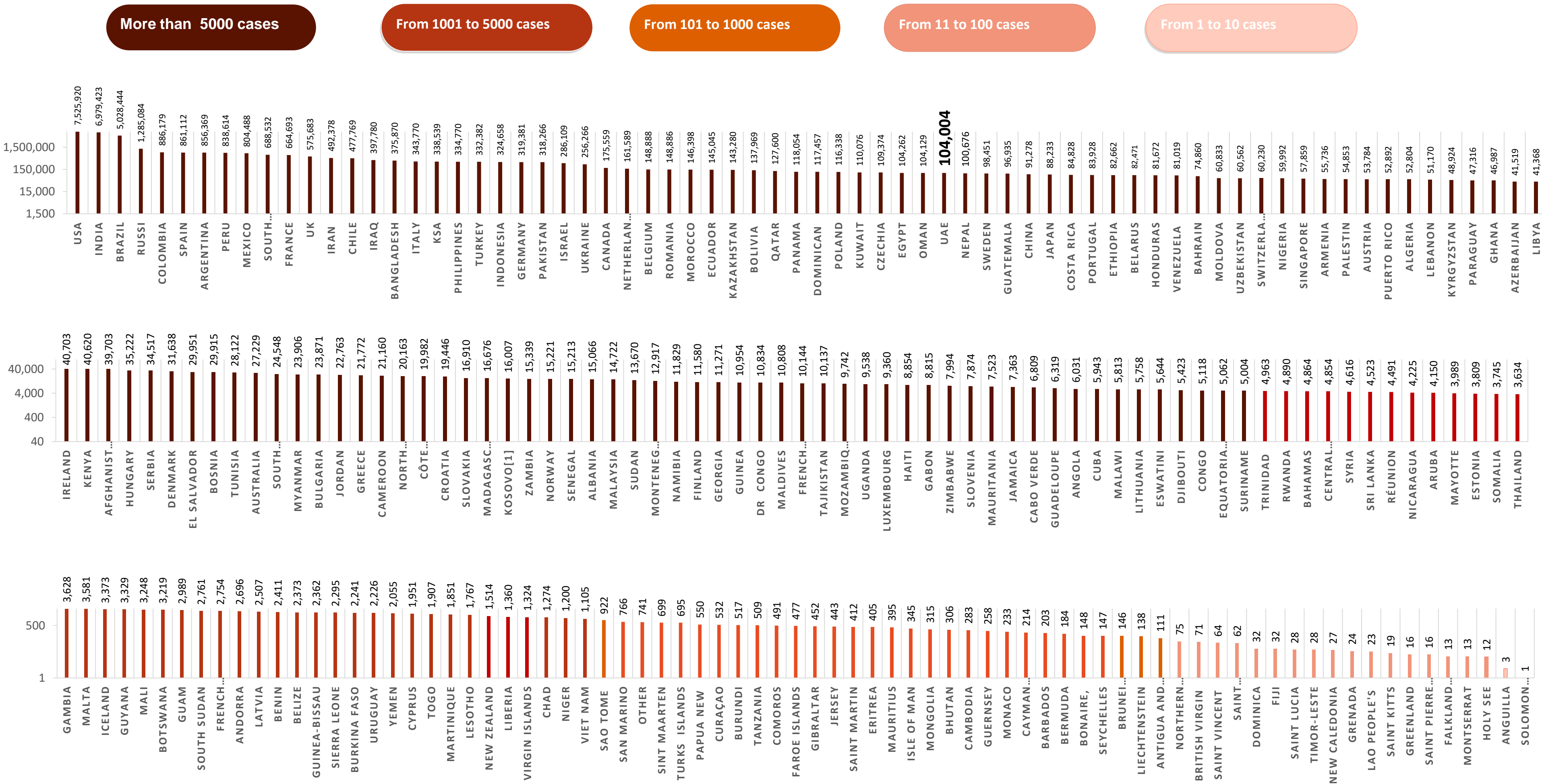


Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases

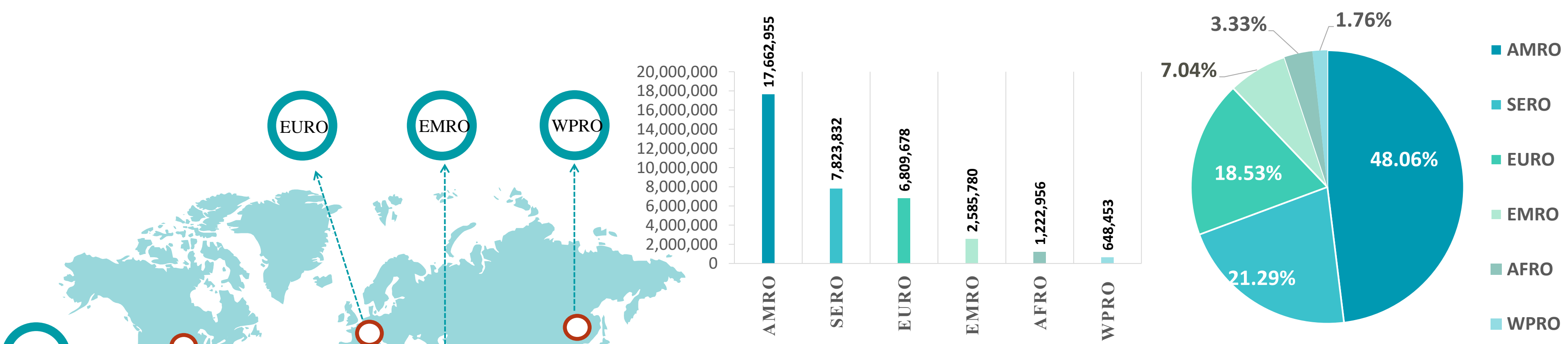


Other*: includes cases and deaths reported under the international conveyance (Diamond Princess)



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

INFECTED



DEATHS

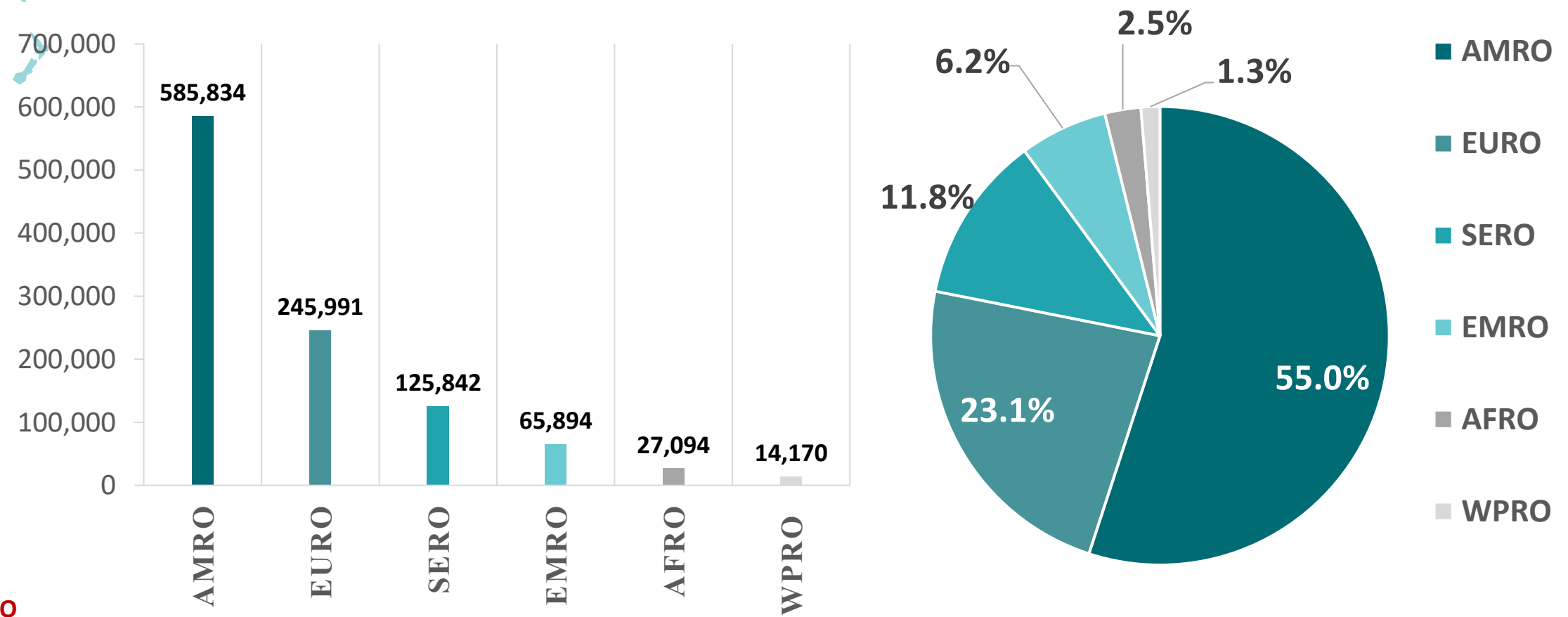
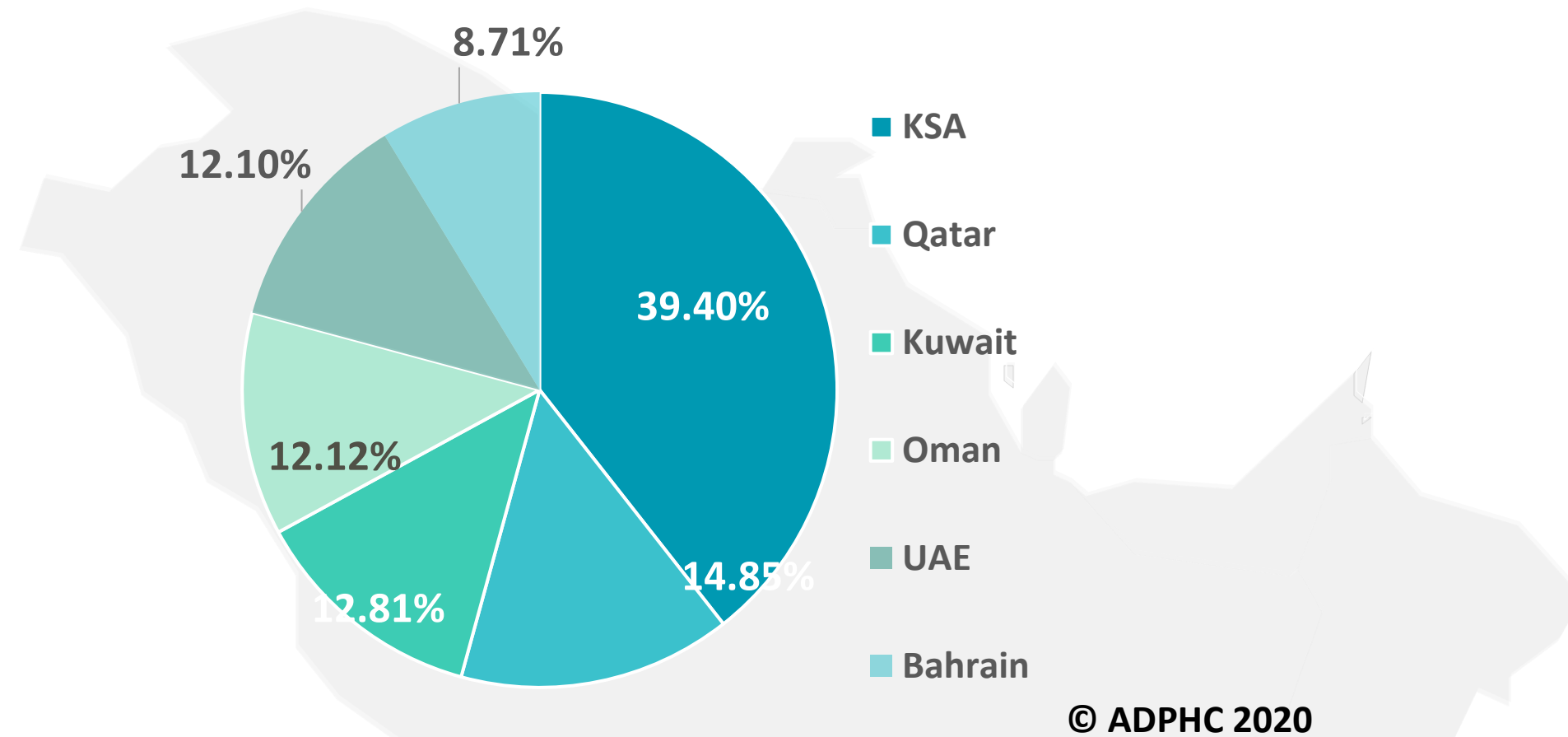
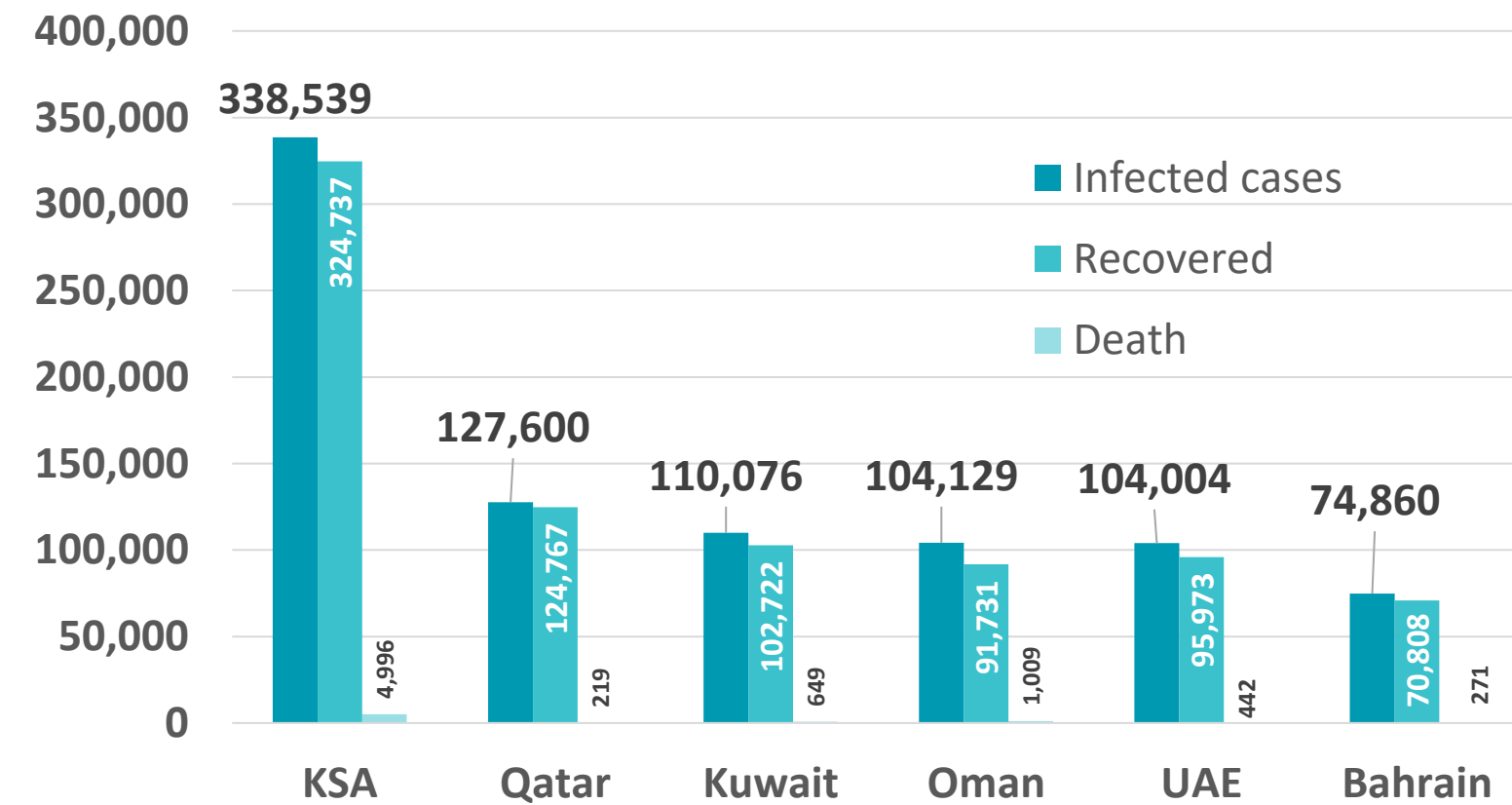


Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

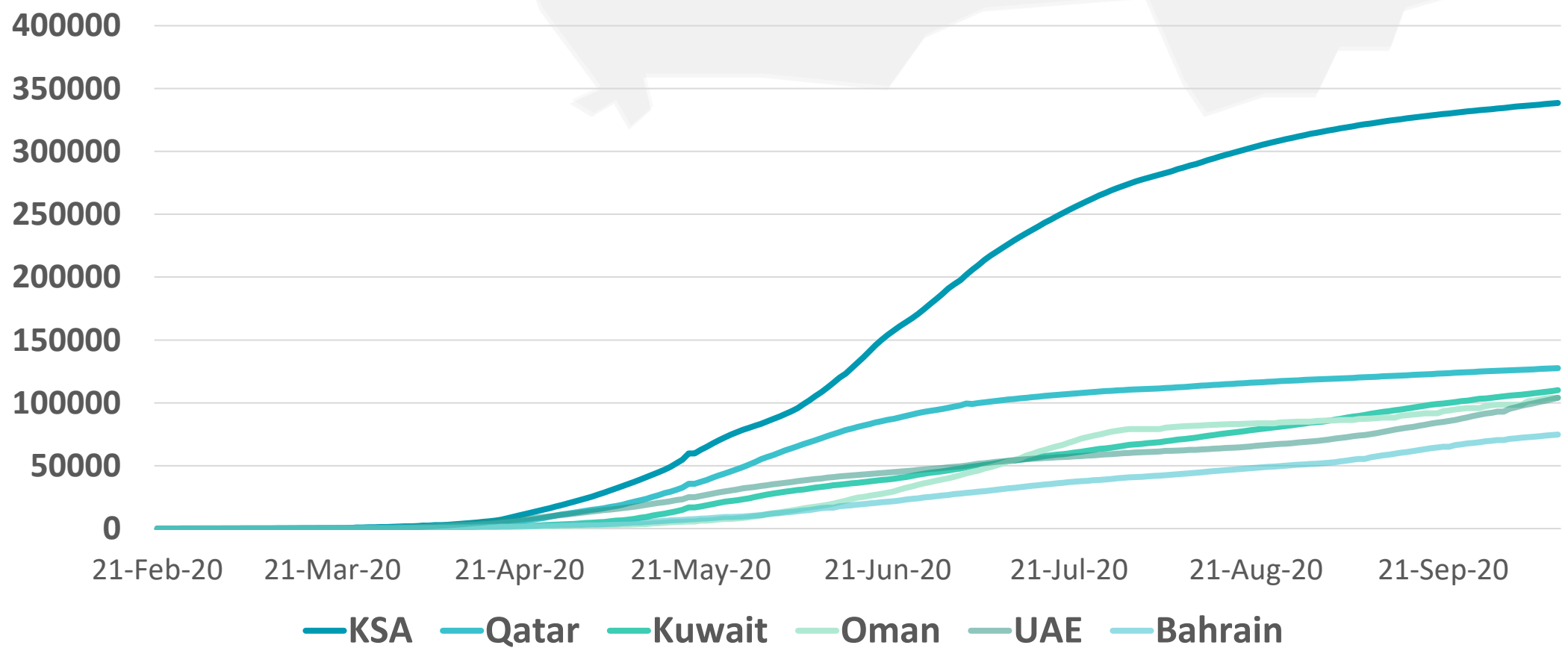
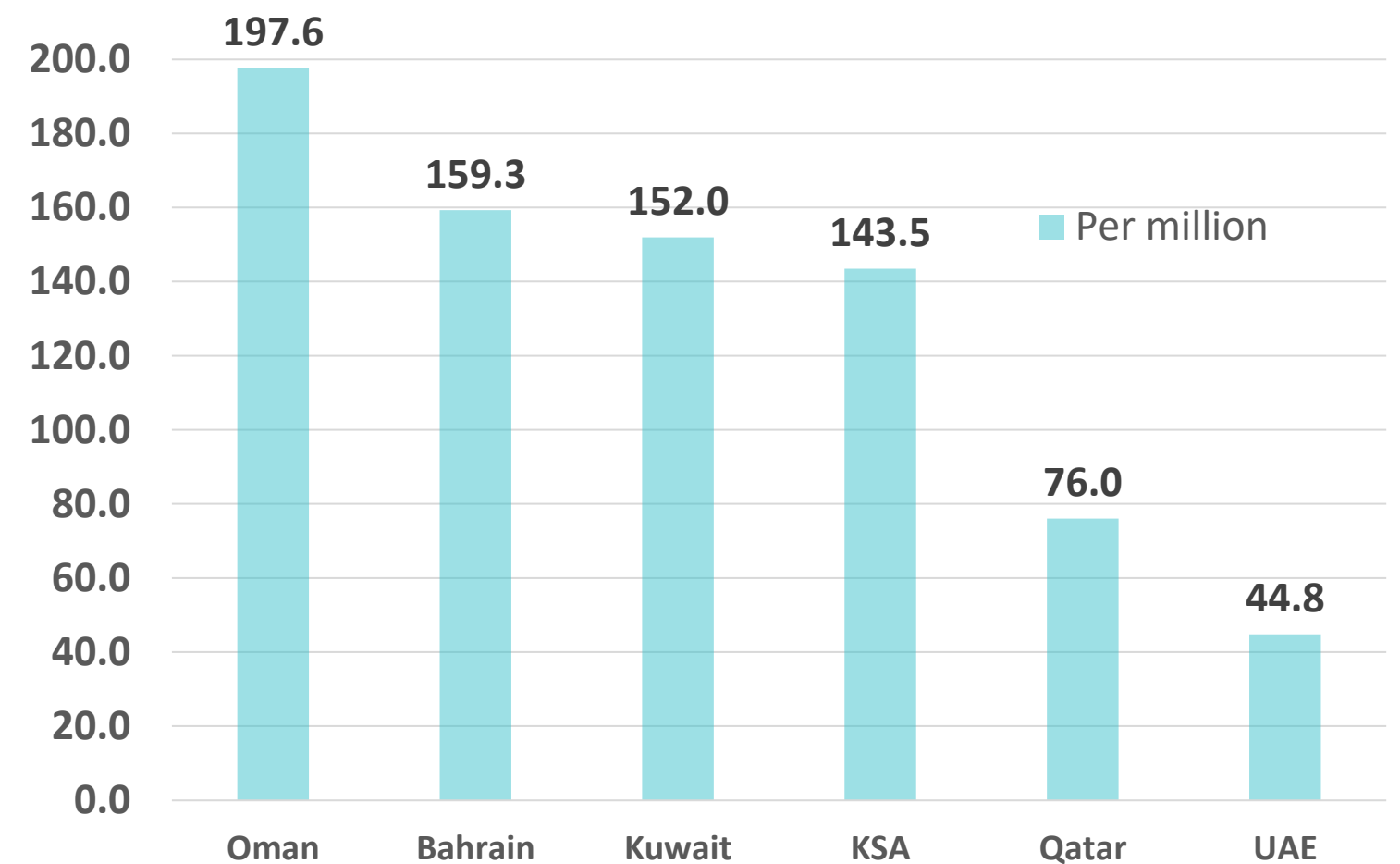
TOTAL NUMBER OF INFECTED CASES



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



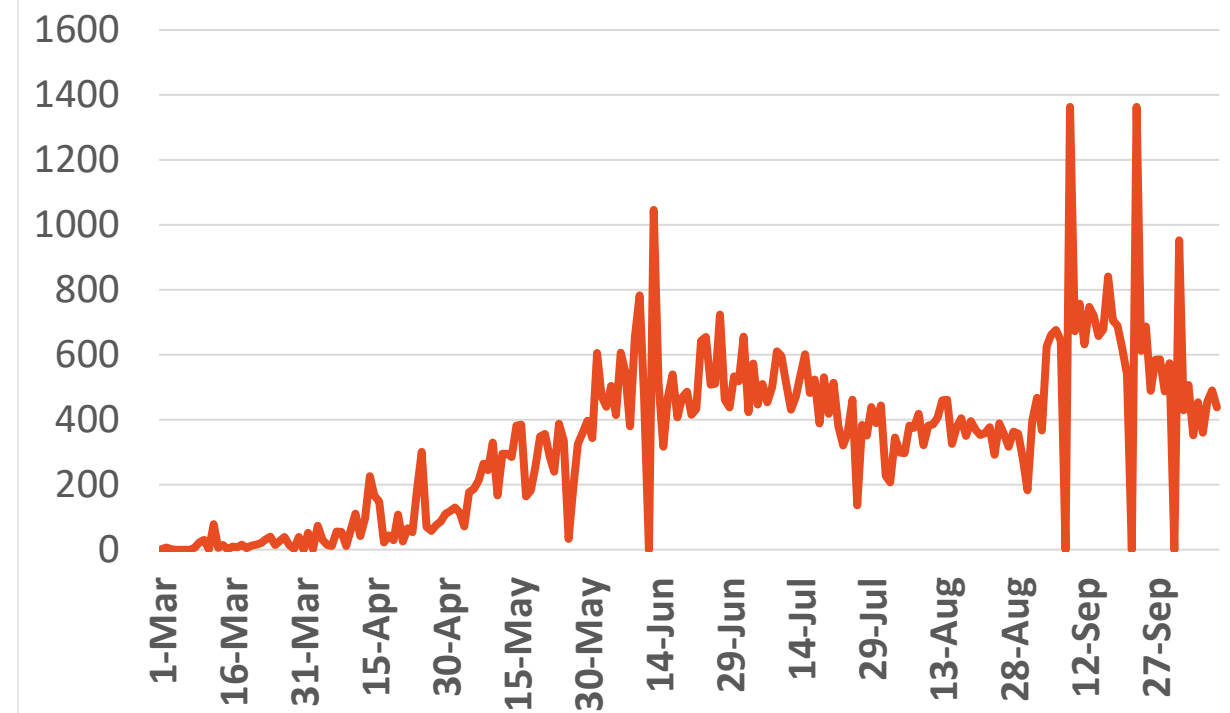
Source : National Emergency Crisis and Disaster Management Authority

KSA



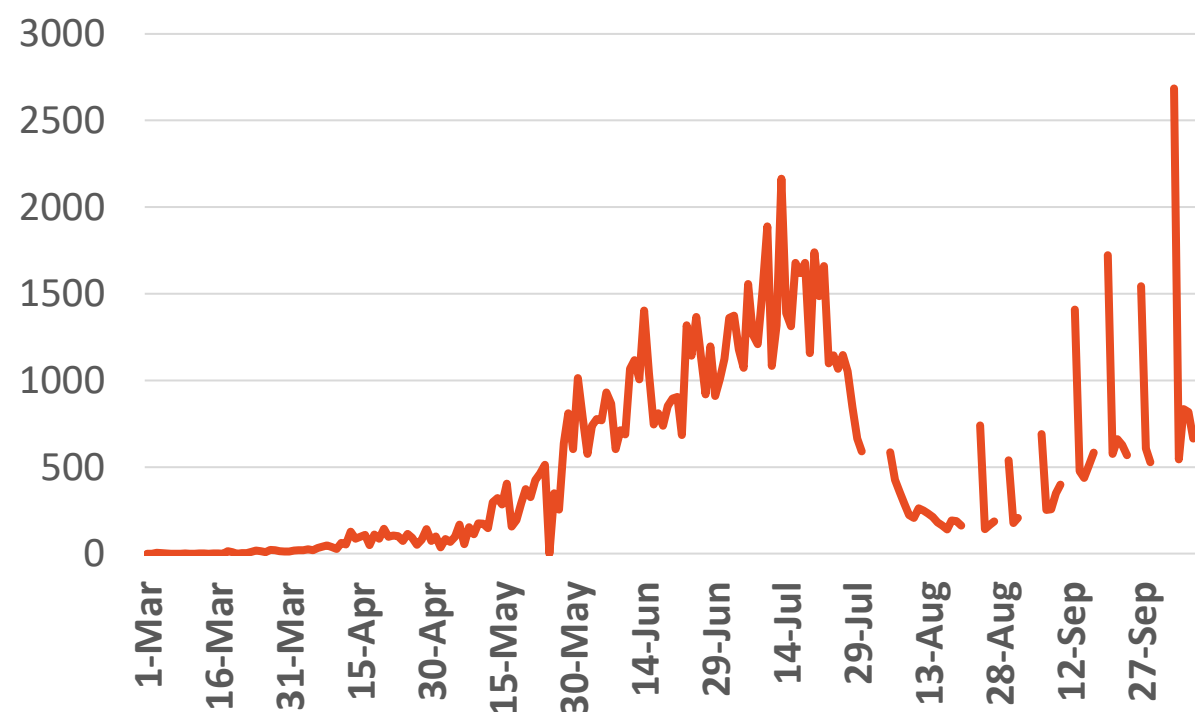
Source : KSA ministry of health

Bahrain



Source :WHO

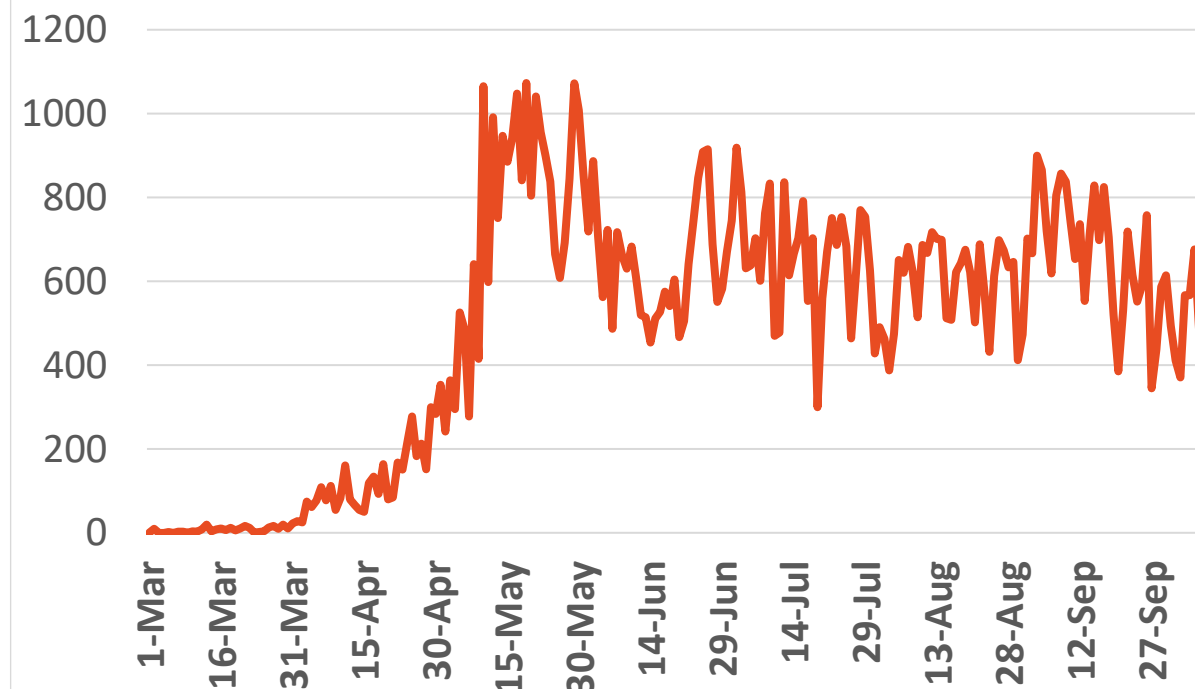
Oman



Source :Oman ministry of health

Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

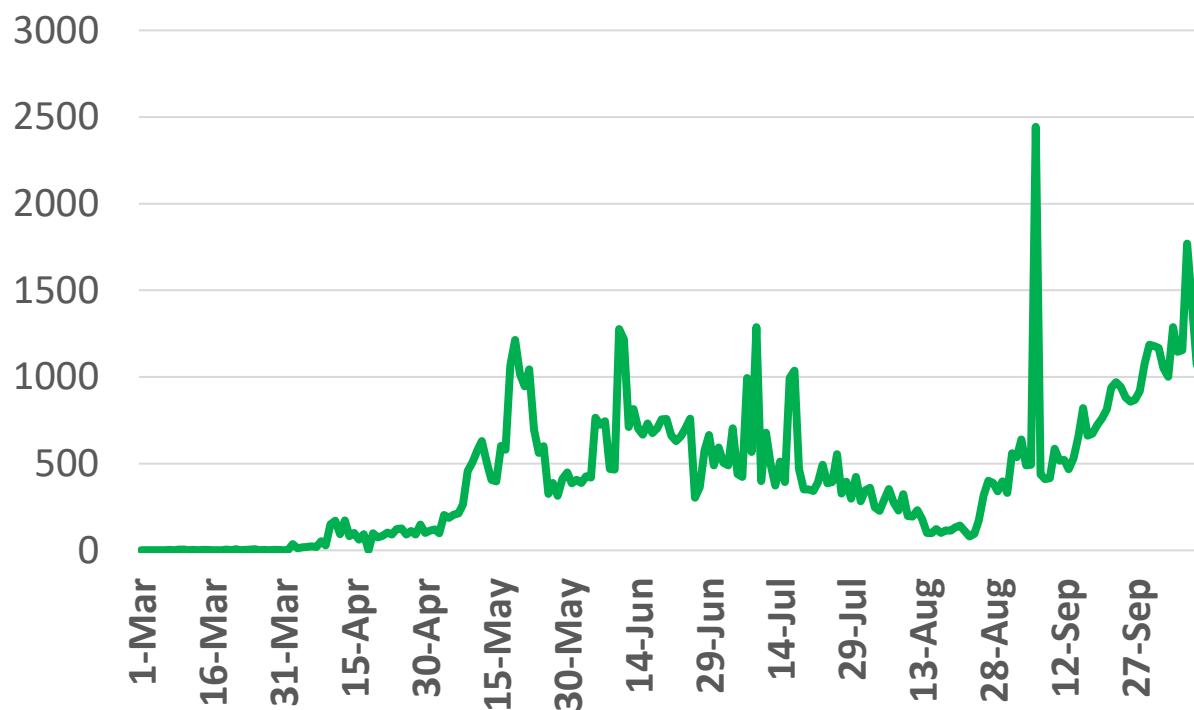
*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4, 5,11,12,18,19,25, 26,30 September,1,2,9 & 10 October

*No announced statistic data on weekends and official holidays.



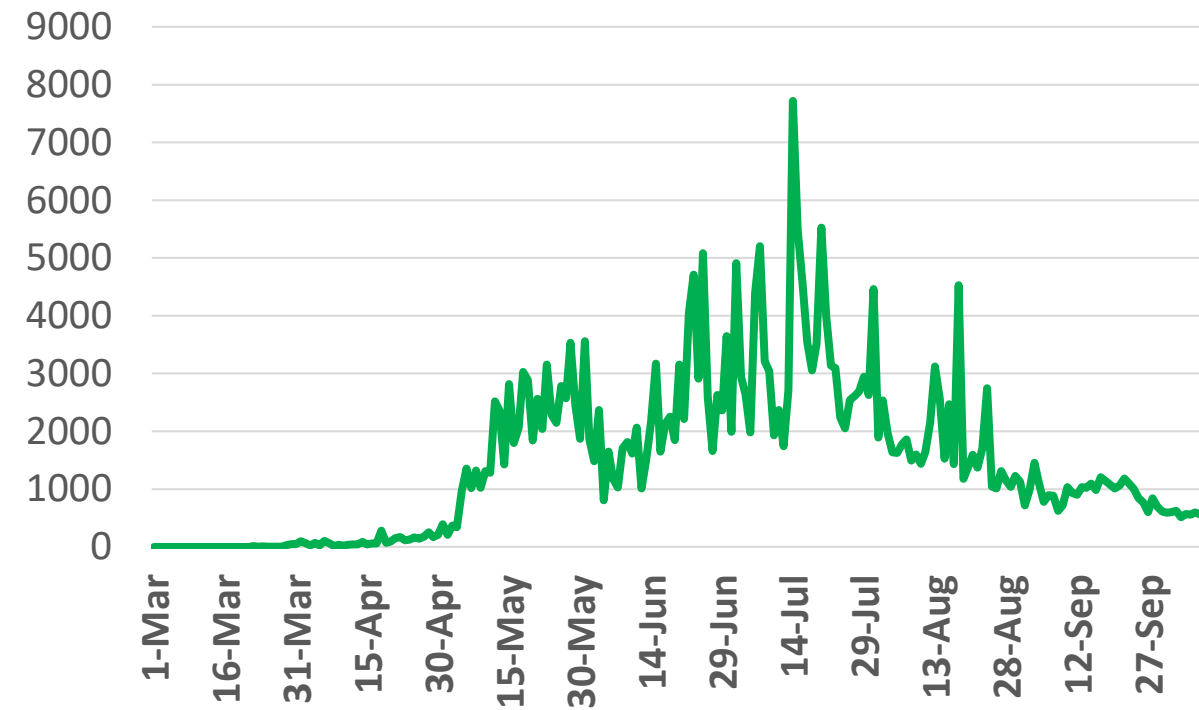
Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries

UAE



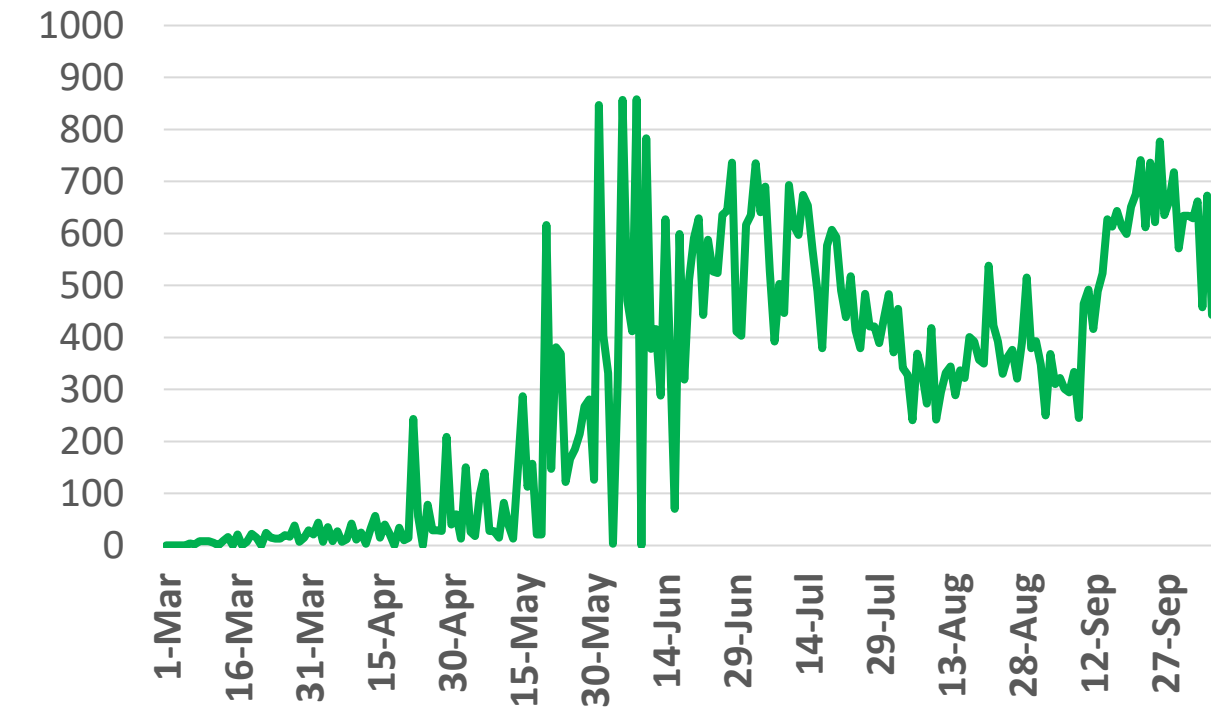
Source : National Emergency Crisis and Disaster Management Authority

KSA



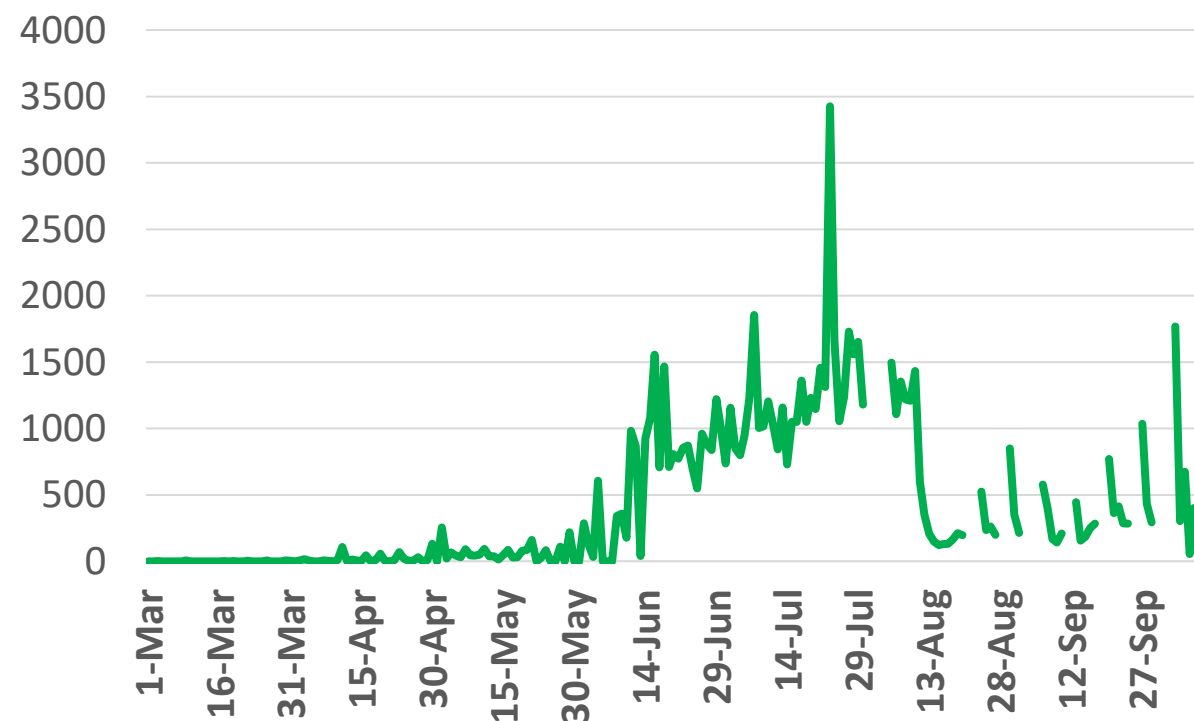
Source : KSA ministry of health

Bahrain



Source : Bahrain ministry of health

Oman



Source : Oman ministry of health

Kuwait

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Source : Kuwait ministry of health

Qatar



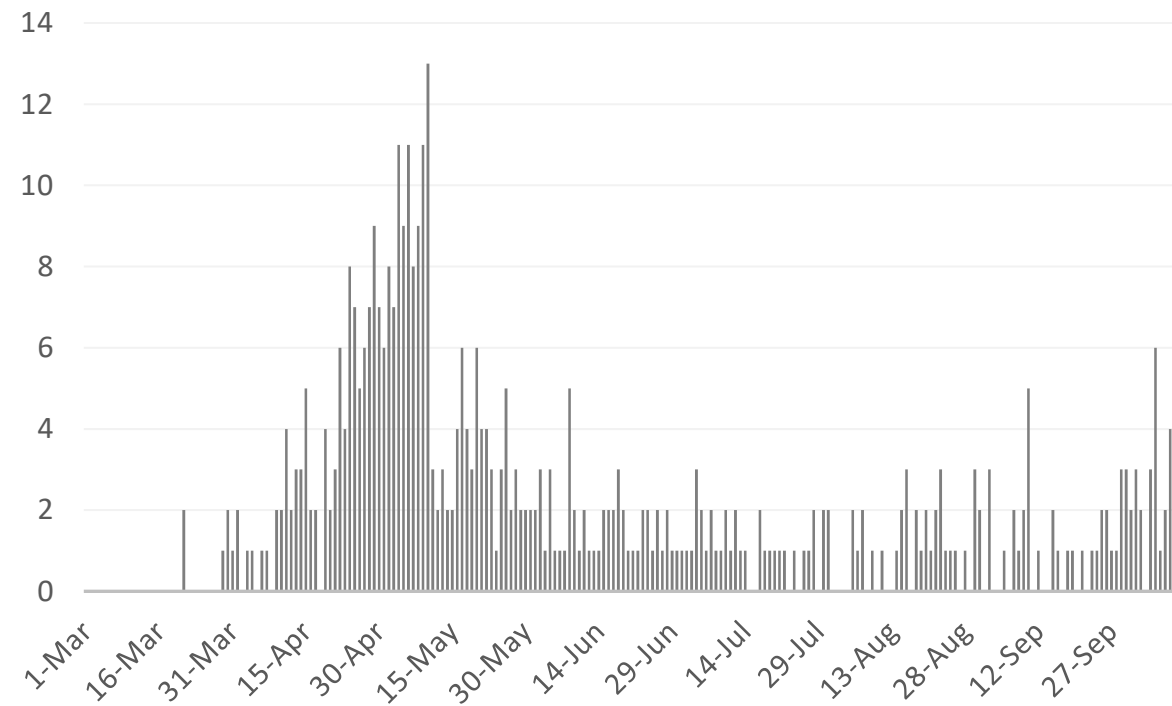
Source : Qatar ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4, 5,11,12,18,19,25, 26,30 September, 1,2,9 & 10 October
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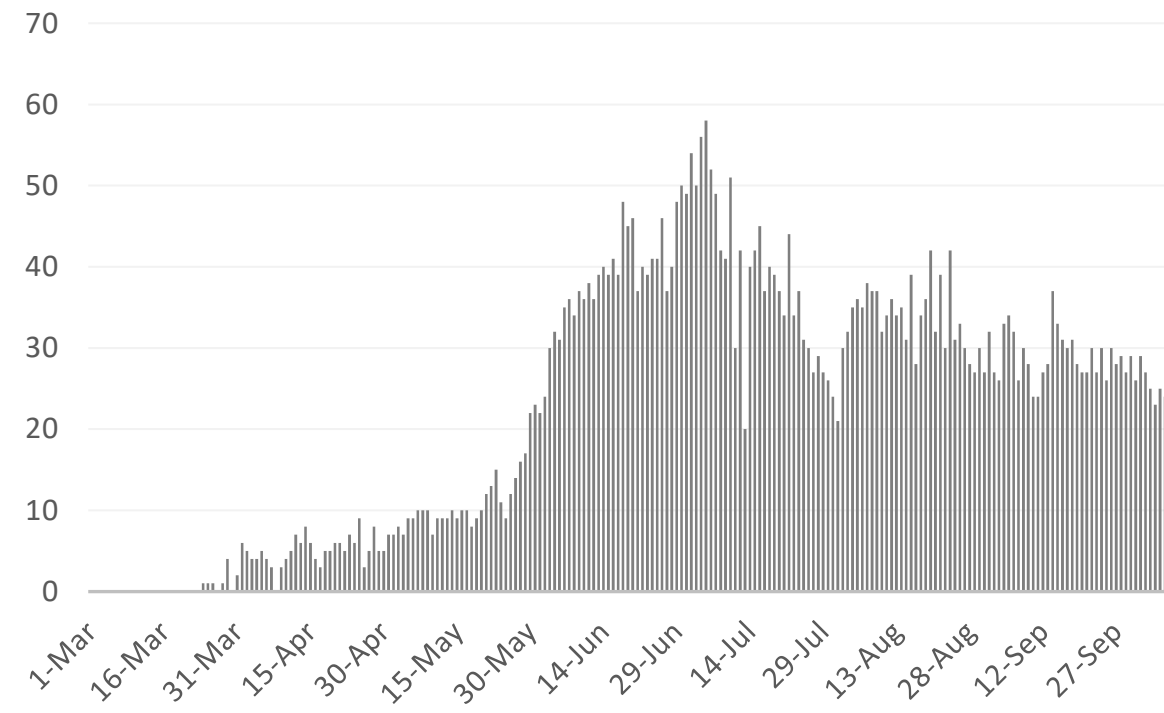
Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

UAE



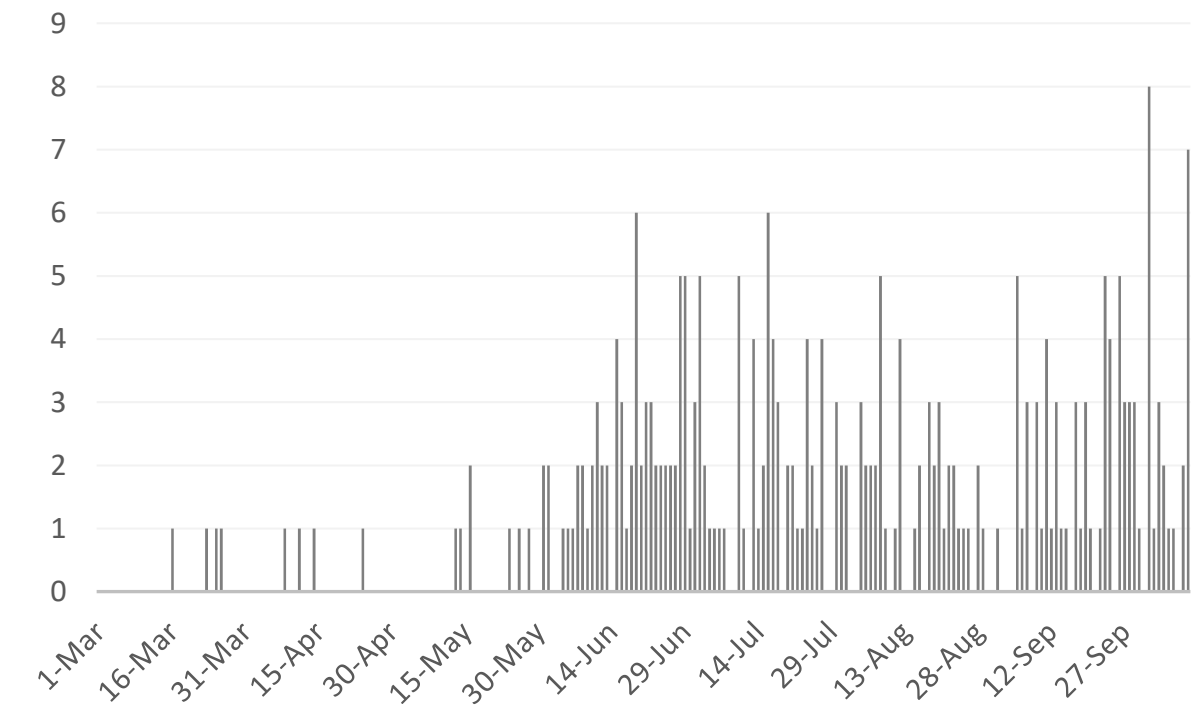
Source : National Emergency Crisis and Disaster Management Authority

KSA



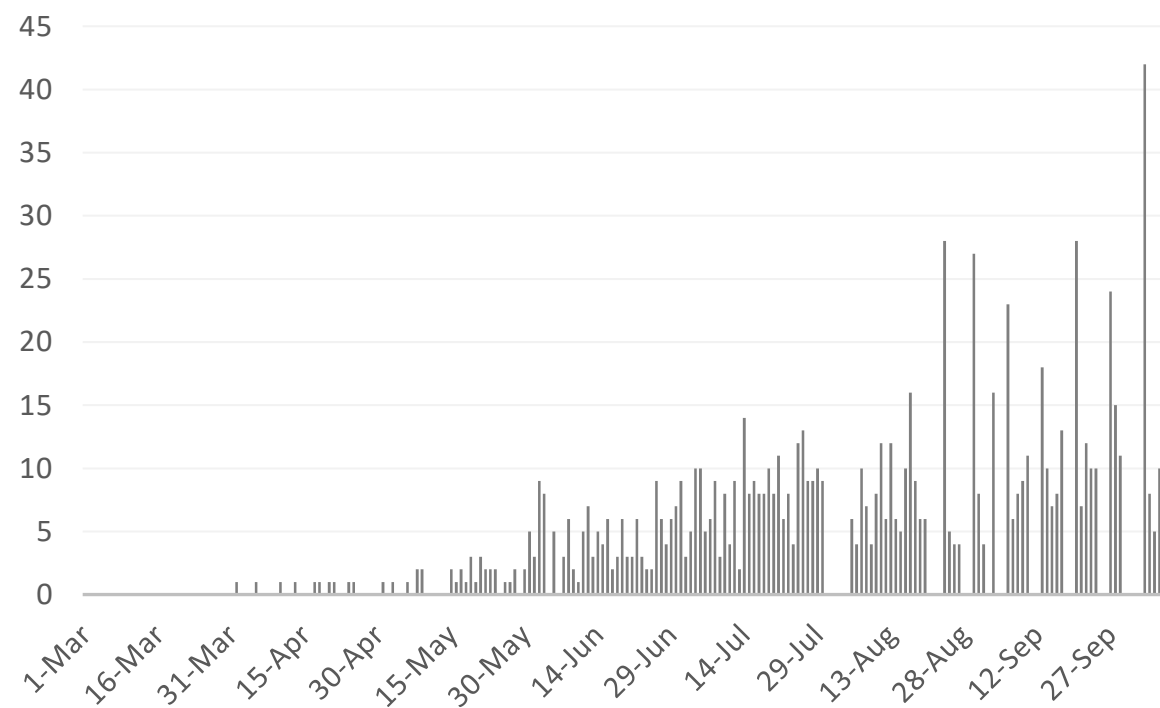
Source : KSA ministry of health

Bahrain



Source :WHO

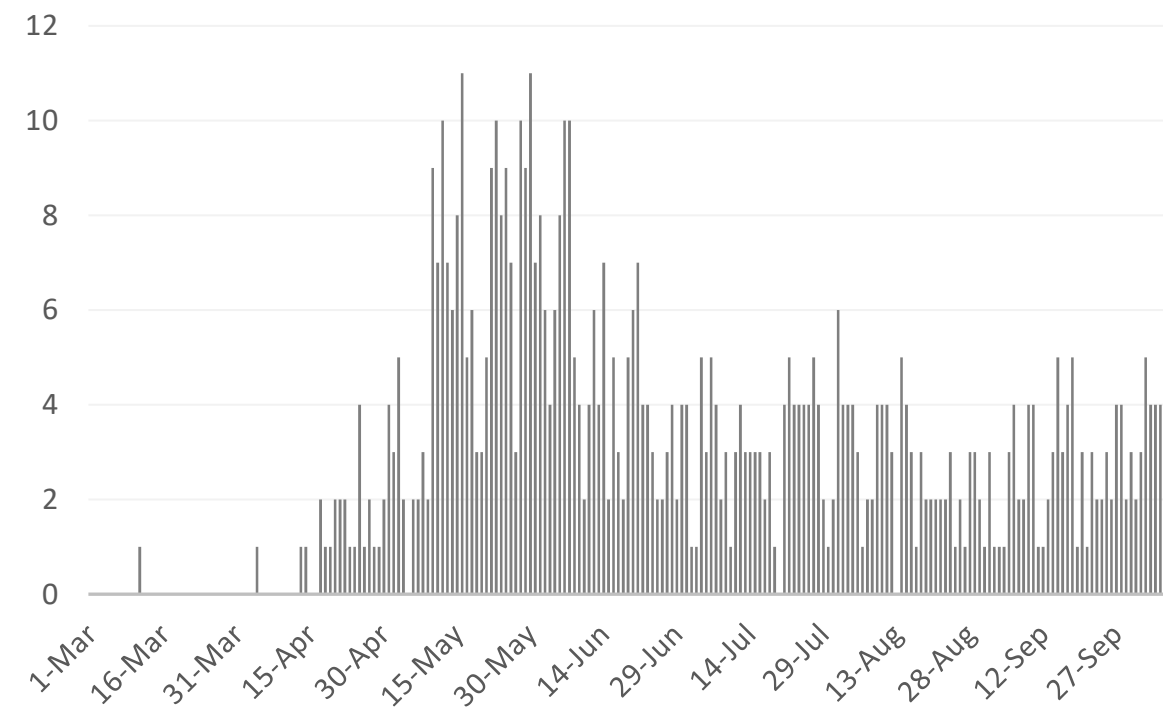
Oman



Source :Oman ministry of health

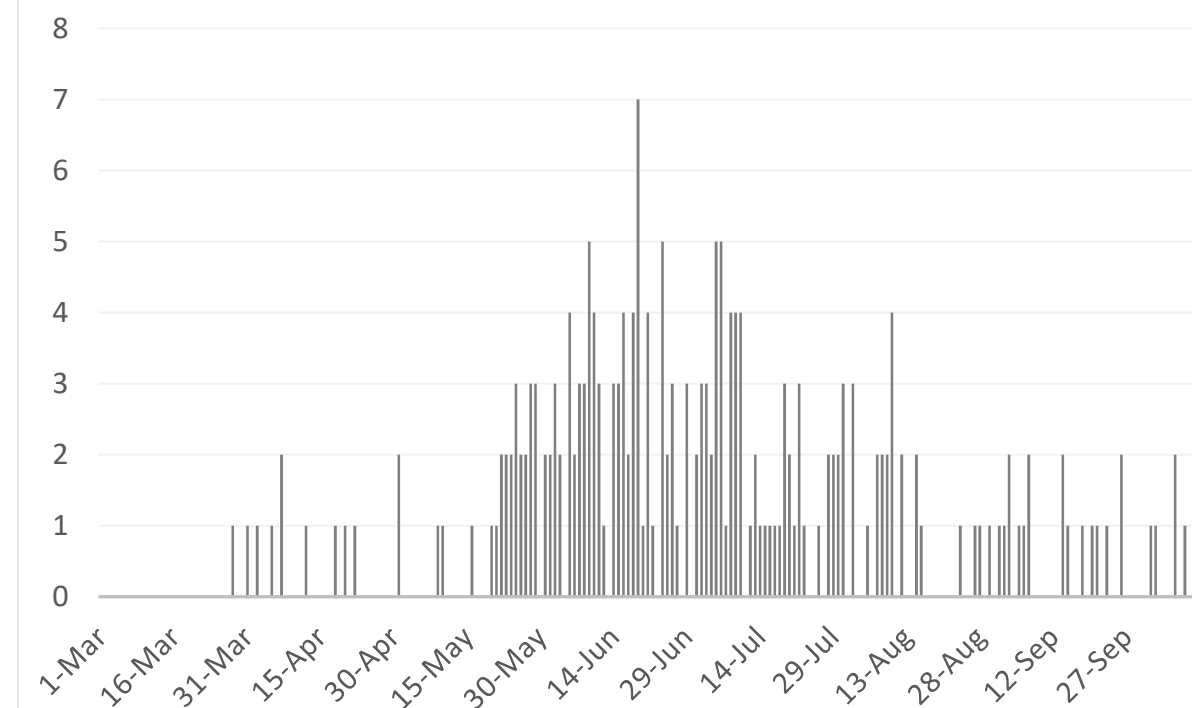
Kuwait

© ADPHC 2020



Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

*No announced statistic data from 31 July to 4 August, 21,23,28,30 August 2, 4, 5,11,12,18,19,25 ,26,30 September,1,2,9 &10 October
*No announced statistic data on weekends and official holidays.





Article 1

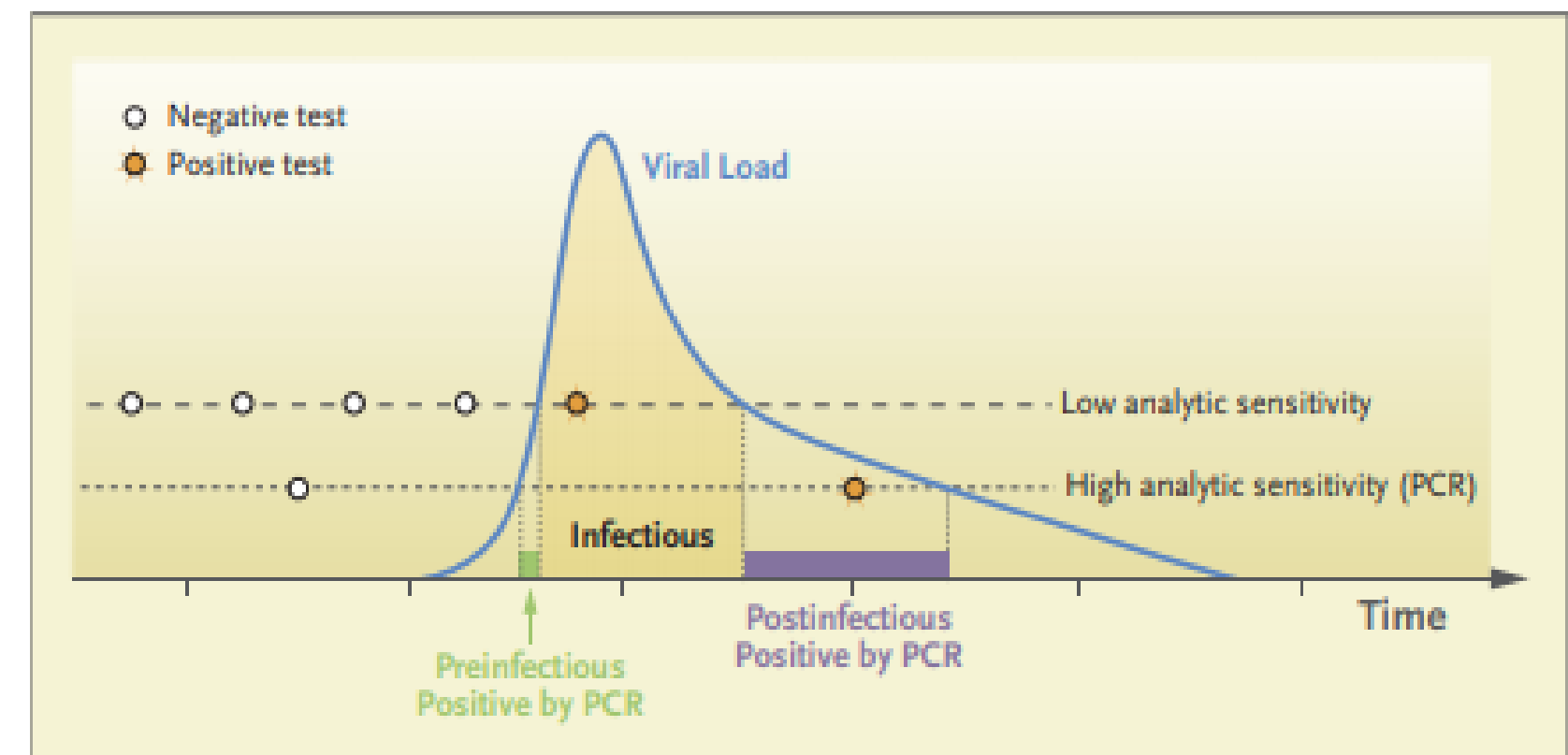
Published

September 30, 2020, [NEJM](#)

Rethinking Covid-19 Test Sensitivity - A Strategy for Containment

- Measuring the sensitivity of a testing regimen or filter requires us to consider a test in context:
 - How often it's used.
 - To whom it's applied.
 - When in the course of an infection it works,
 - Whether its results are returned in time to prevent spread.
- The tests we need are fundamentally different from the clinical tests currently being used, and they must be evaluated differently.
- The benchmark standard clinical polymerase-chain-reaction (PCR) test fails when used in a surveillance regimen.
 - Samples require transport to a centralized lab staffed by experts
 - Slow turnaround times limits the impact of isolation and contact tracing.

Clinical Tests	Surveillance Tests
Used with symptomatic people	To reduce the population prevalence of a respiratory virus
No need to be low-cost	Should be sufficiently inexpensive
Require high analytic sensitivity	Easy to execute to allow frequent testing
	Need to return results quickly



High-Frequency Testing with Low Analytic Sensitivity versus Low-Frequency Testing with High Analytic Sensitivity.

A person's infection trajectory (blue line) is shown in the context of two surveillance regimens (circles) with different analytic sensitivity. The low-analytic-sensitivity assay is administered frequently and the high-analytic-sensitivity assay infrequently. Both testing regimens detect the infection (orange circles), but only the high-frequency test detects it during the transmission window (shading), in spite of its lower analytic sensitivity, which makes it a more effective filter. The window during which polymerase chain reaction (PCR) detects infections before infectivity (green) is short, whereas the corresponding postinfectious but PCR-detectable window (purple) is long.



Continued

- Many people whose infections are detected during routine surveillance using high-analytic-sensitivity but low-frequency tests are no longer infectious at the time of detection (see diagram on previous slide).
 - The long duration of the RNA-positive tail suggests that most infected people are being identified after the infectious period has passed.
 - It also means that thousands of people are being sent to 10-day quarantines after positive RNA tests despite having already passed the transmissible stage of infection.
- We need tests that can enable regimens that will capture most infections while they are still infectious such as:
 - Rapid lateral-flow antigen tests,
 - Rapid lateral-flow tests based on CRISPR gene-editing technology are on the horizon
- **Surveillance testing regimens that can sever enough transmission chains to reduce community spread should complement, not replace, our current clinical diagnostic tests.**
- The FDA's late August emergency use authorization (EUA) of Abbott BinaxNOW, the first rapid, instrument-free antigen test to receive an EUA, was a step in the right direction.
- The FDA, the CDC, the National Institutes of Health, and others must encourage structured evaluations of tests in the context of planned testing regimens to identify those that will provide the best COVID filters.





TRANSMISSION

Article 2

Published

October 03, 2020, [Oxford Academia](#)

Survival of SARS-CoV-2 and Influenza Virus on the Human Skin: Importance of Hand Hygiene in COVID-19

A study evaluated the stability of SARS-CoV-2 and influenza A virus (IAV), mixed with culture medium or upper respiratory mucus, on human skin surfaces and the dermal disinfection effectiveness of 80% ethanol against SARS-CoV-2 and IAV. Viral survival was also assessed on the surface of stainless steel, borosilicate glass, polystyrene, and the human skin model.

Findings

- SARS-CoV-2 and IAV were inactivated more rapidly on skin surfaces than on other surfaces (stainless steel/glass/plastic); the survival time was significantly longer for SARS-CoV-2 than for IAV [9.04 h (95% confidence interval: 7.96–10.2 h) vs 1.82 h (1.65–2.00 h)].
- IAV on other surfaces was inactivated faster in mucus versus medium conditions, while SARS-CoV-2 showed similar stability in the mucus and medium; the survival time was significantly longer for SARS-CoV-2 than for IAV [11.09 h (10.22–12.00 h) vs 1.69 h (1.57–1.81 h)]. Moreover, both SARS-CoV-2 and IAV in the mucus/medium on human skin were completely inactivated within 15 s by ethanol treatment.

Conclusion

- The 9-h survival of SARS-CoV-2 on human skin may increase the risk of contact transmission in comparison with IAV, thus accelerating the pandemic. This study shows that SARS-CoV-2 may have a higher risk of contact transmission than IAV because the first is much more stable on human skin than the former. These findings support the hypothesis that proper hand hygiene is important for the prevention of the spread of SARS-CoV-2.



THANK YOU

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