

SCIENTIFIC RESEARCH MONITORING ON COVID-19

29 AUGUST 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19

(ISSUE 209)

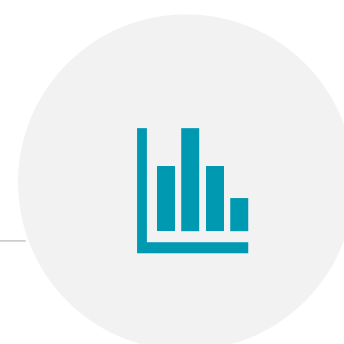


Abu Dhabi Public Health Center (ADPHC) is gathering the latest scientific research updates and trends on coronavirus disease (COVID-19) in a daily report. The report provides summaries on breakthrough or updated research on COVID-19 to allow health care professionals and public health professionals get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

Click on icon to view content



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

Age-Related Differences in Nasopharyngeal Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV2) Levels in Patients With Mild to Moderate Coronavirus Disease 2019 (COVID19)

Public Health Response

What Happens When COVID-19 Collides With Flu Season

Epidemiology

Comparison of Molecular Testing Strategies for COVID-19 Control: A Mathematical Modelling Study



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

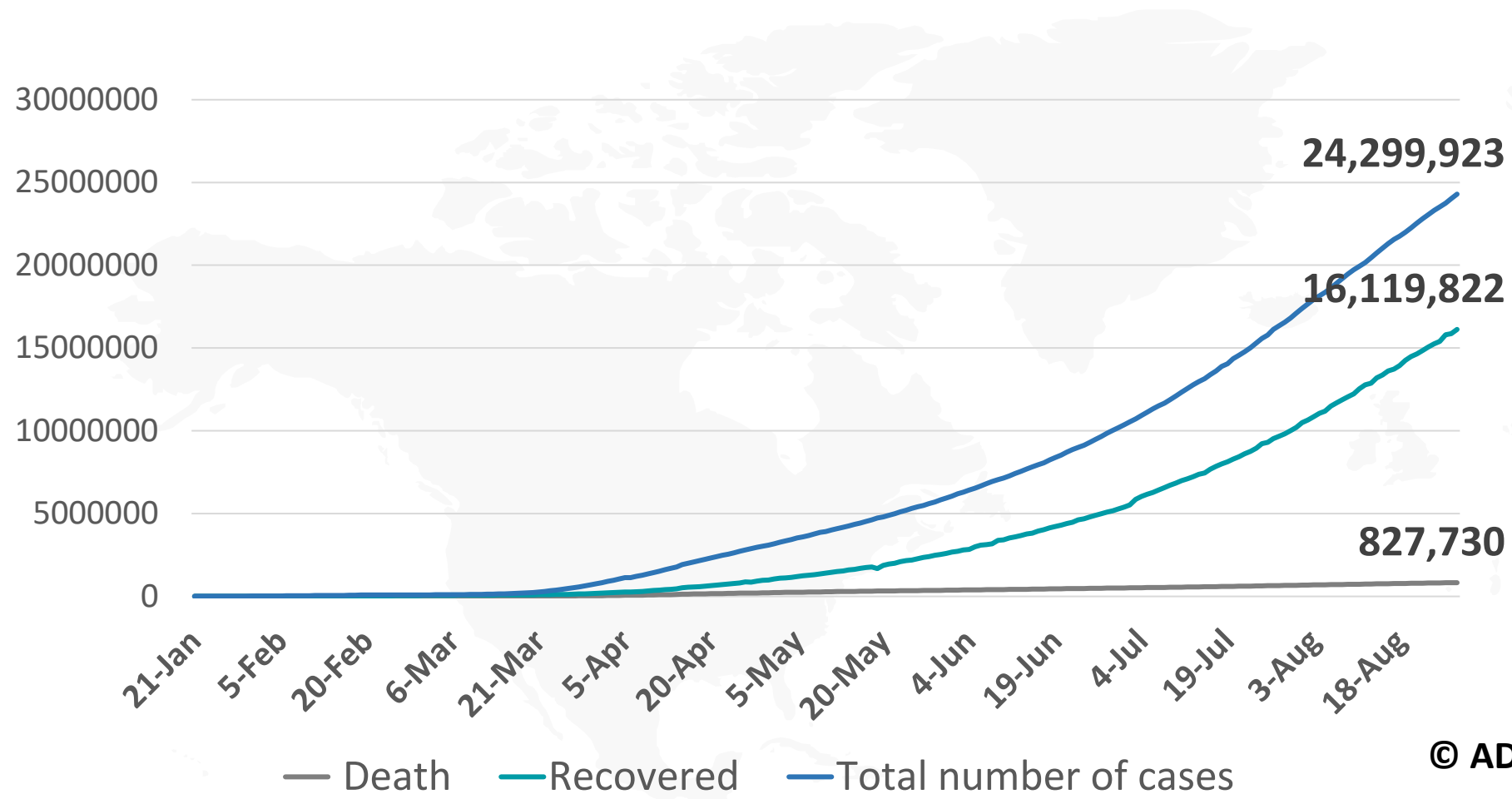


Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)

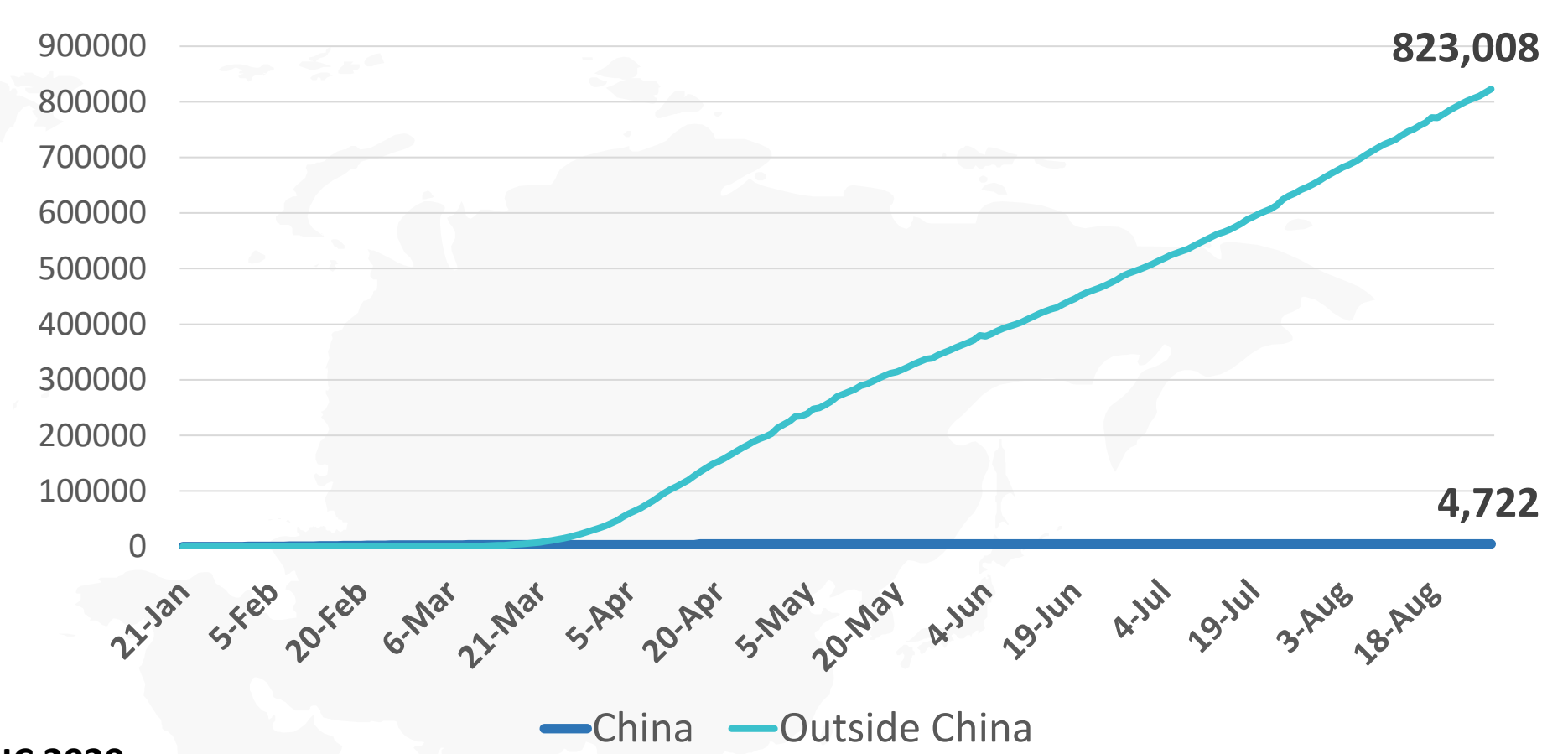


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

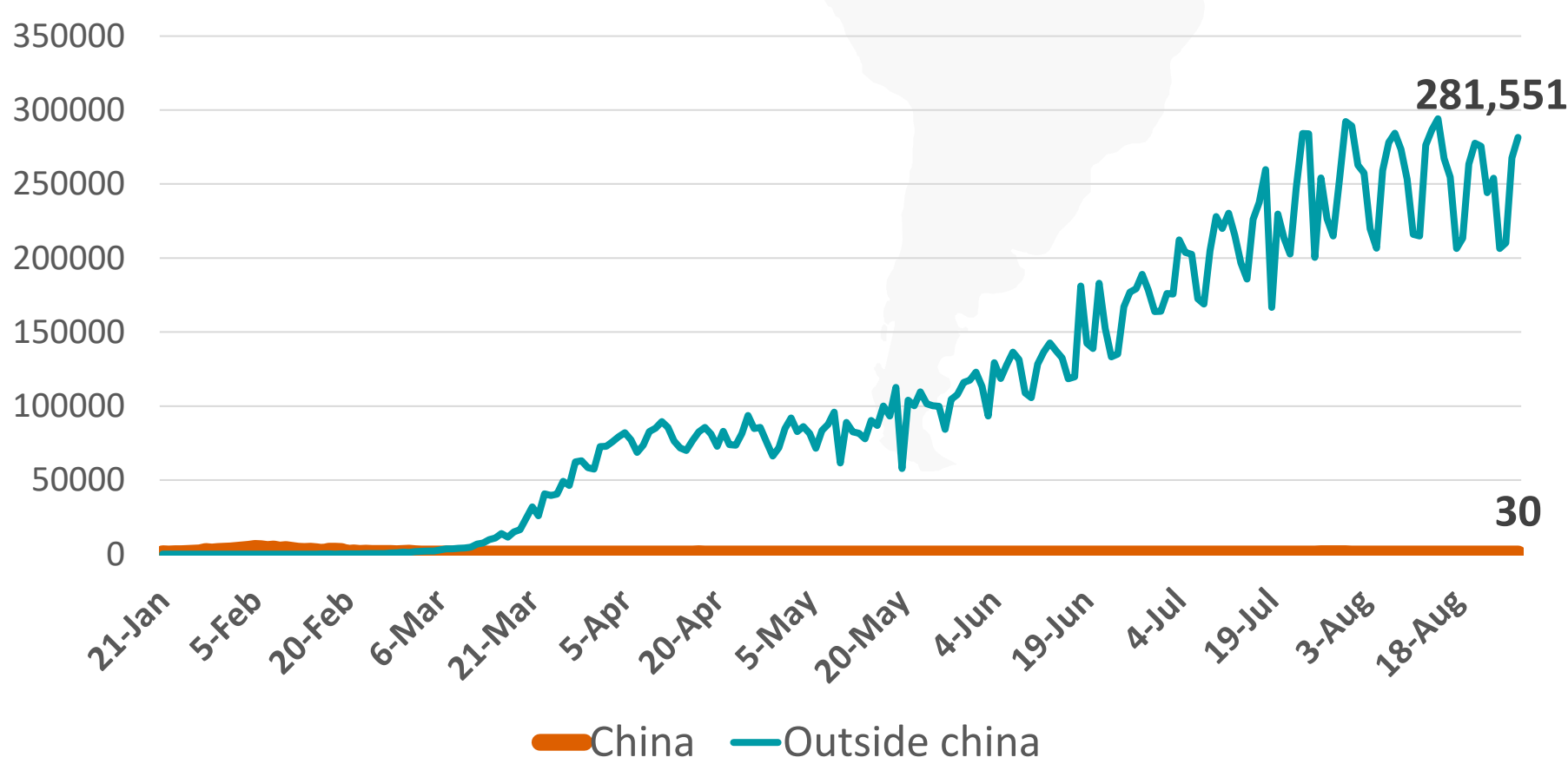


Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)

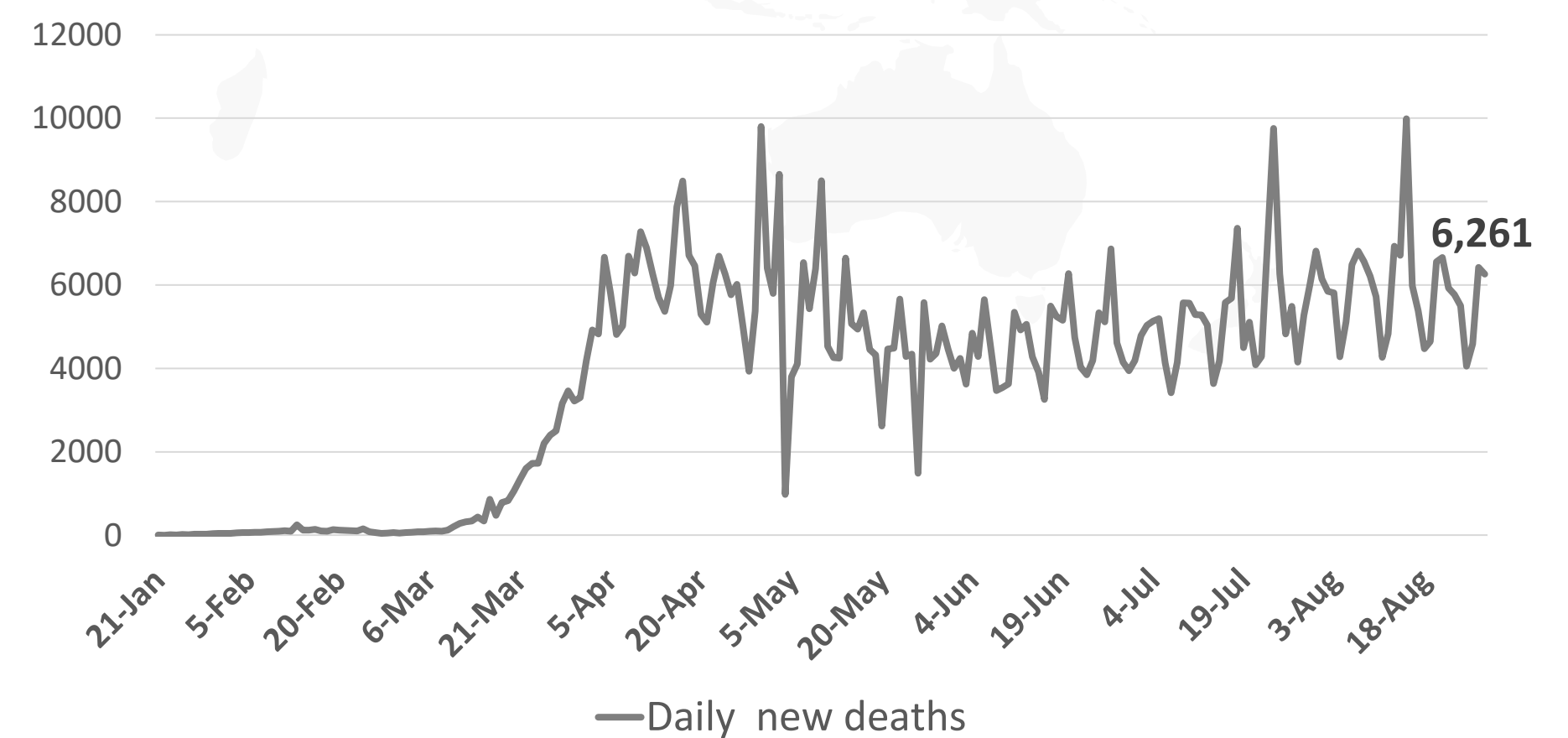
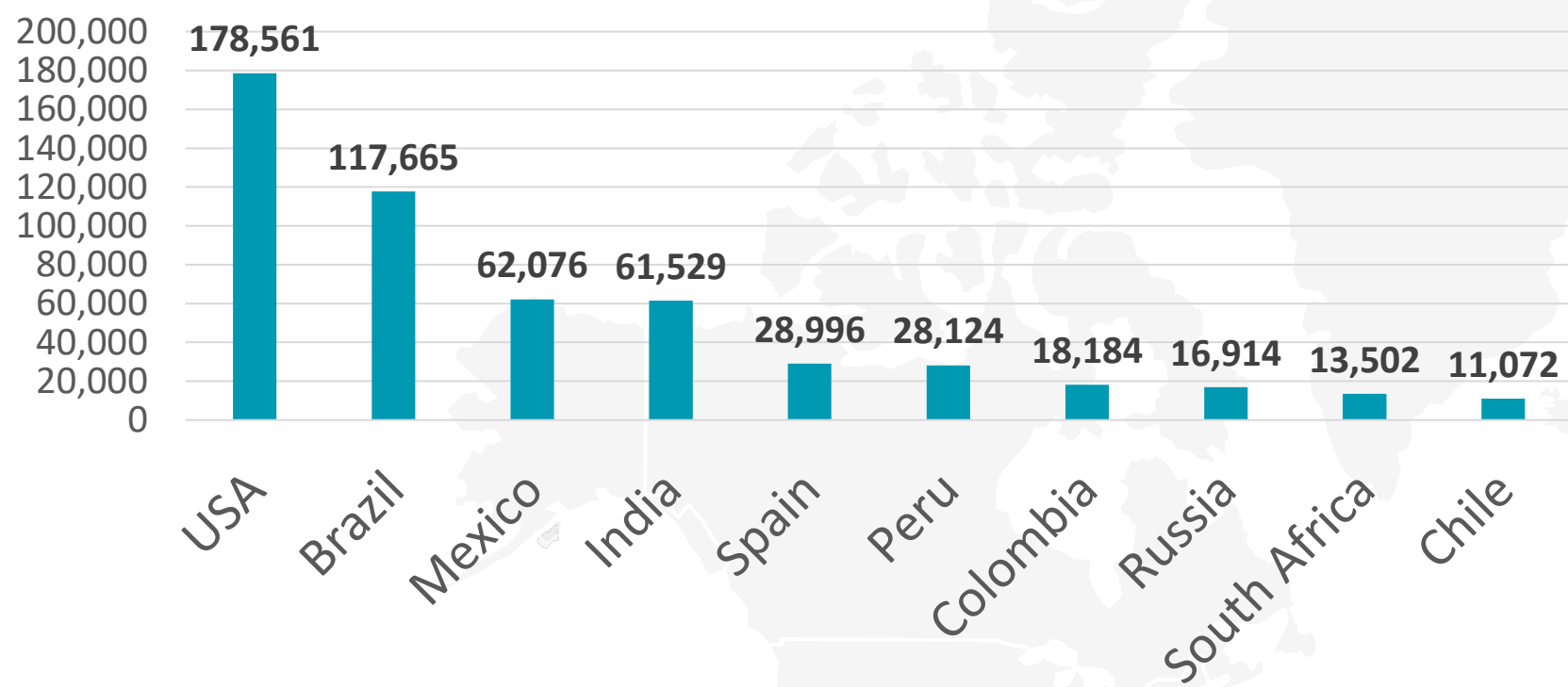
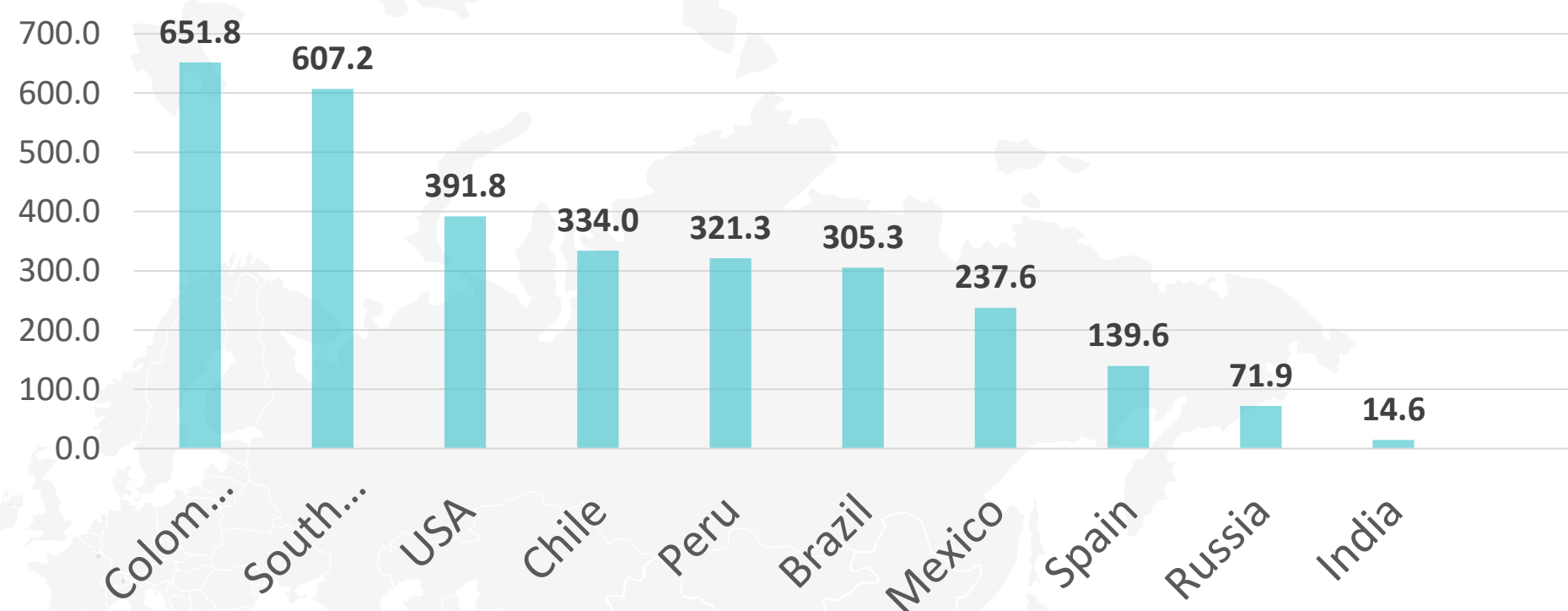


Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

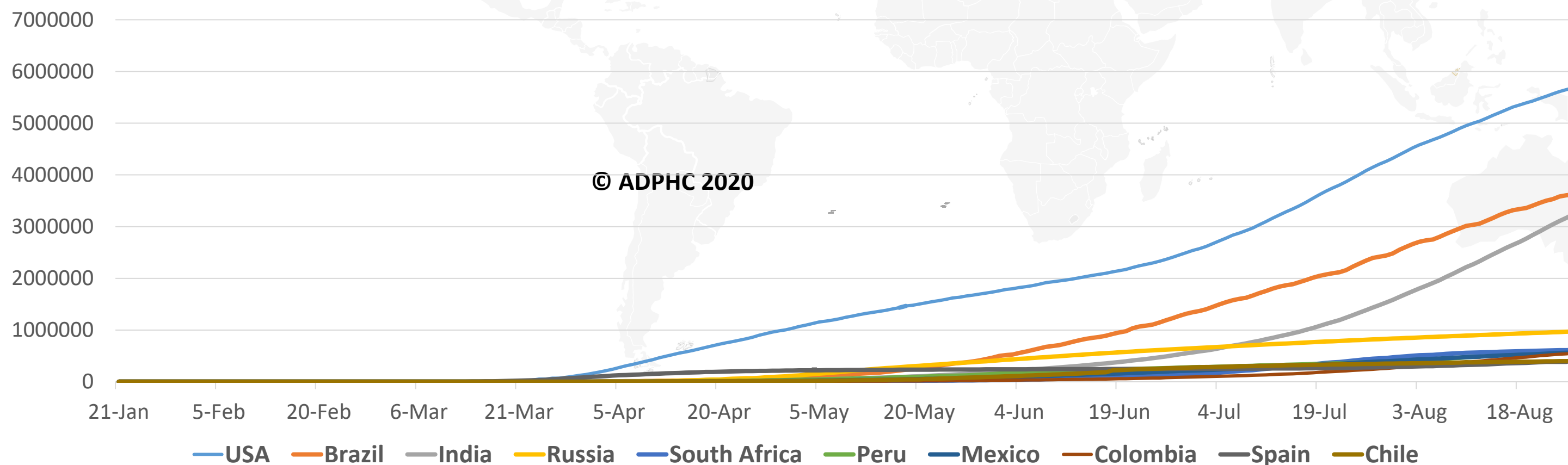
TOTAL DEATHS



DEATHS PER MILLION

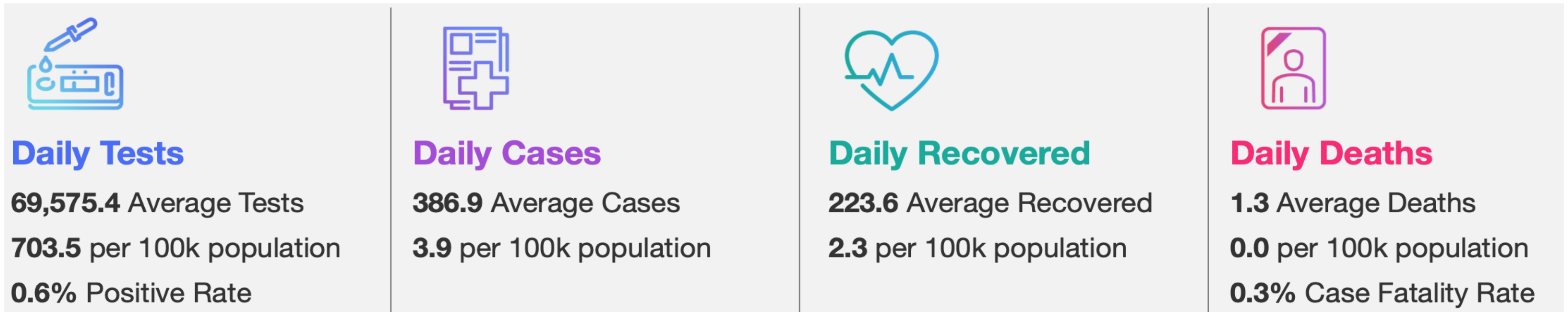


TOTAL INFECTED CASES



| | |
|--------------|-----------|
| USA | 5,765,325 |
| Brazil | 3,717,156 |
| India | 3,387,500 |
| Russia | 980,405 |
| South Africa | 615,701 |
| Peru | 613,378 |
| Mexico | 573,888 |
| Colombia | 572,270 |
| Spain | 429,507 |
| Chile | 404,102 |

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

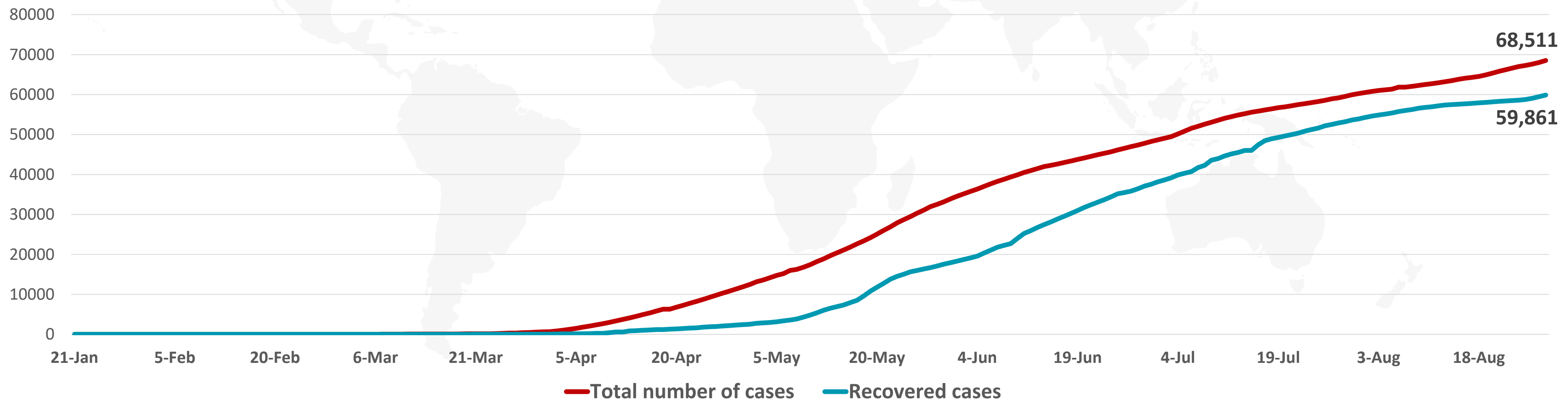
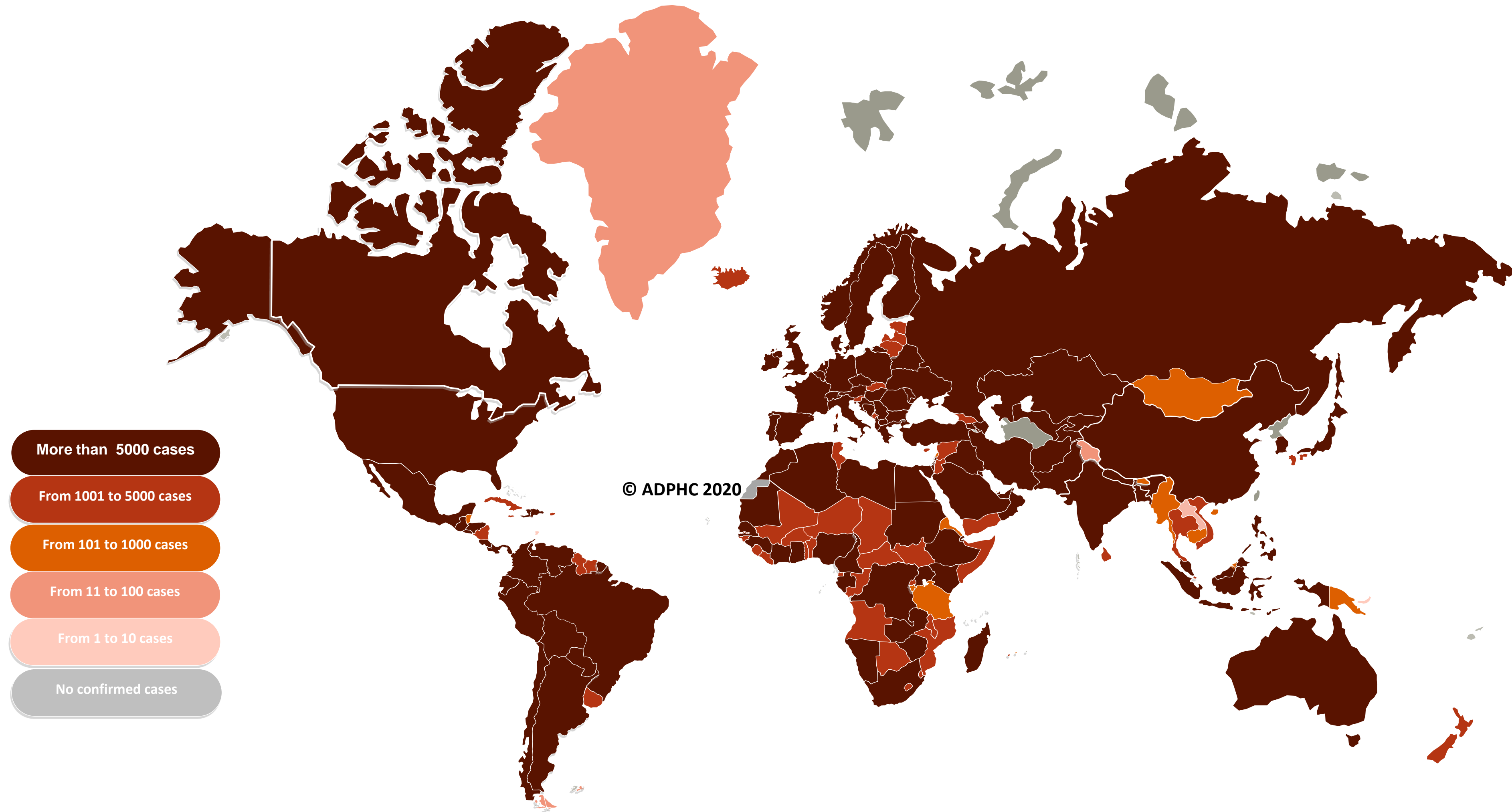


Figure 7A : Global Distribution of COVID-19 Cases



More than 5000 cases

From 1001 to 5000 cases

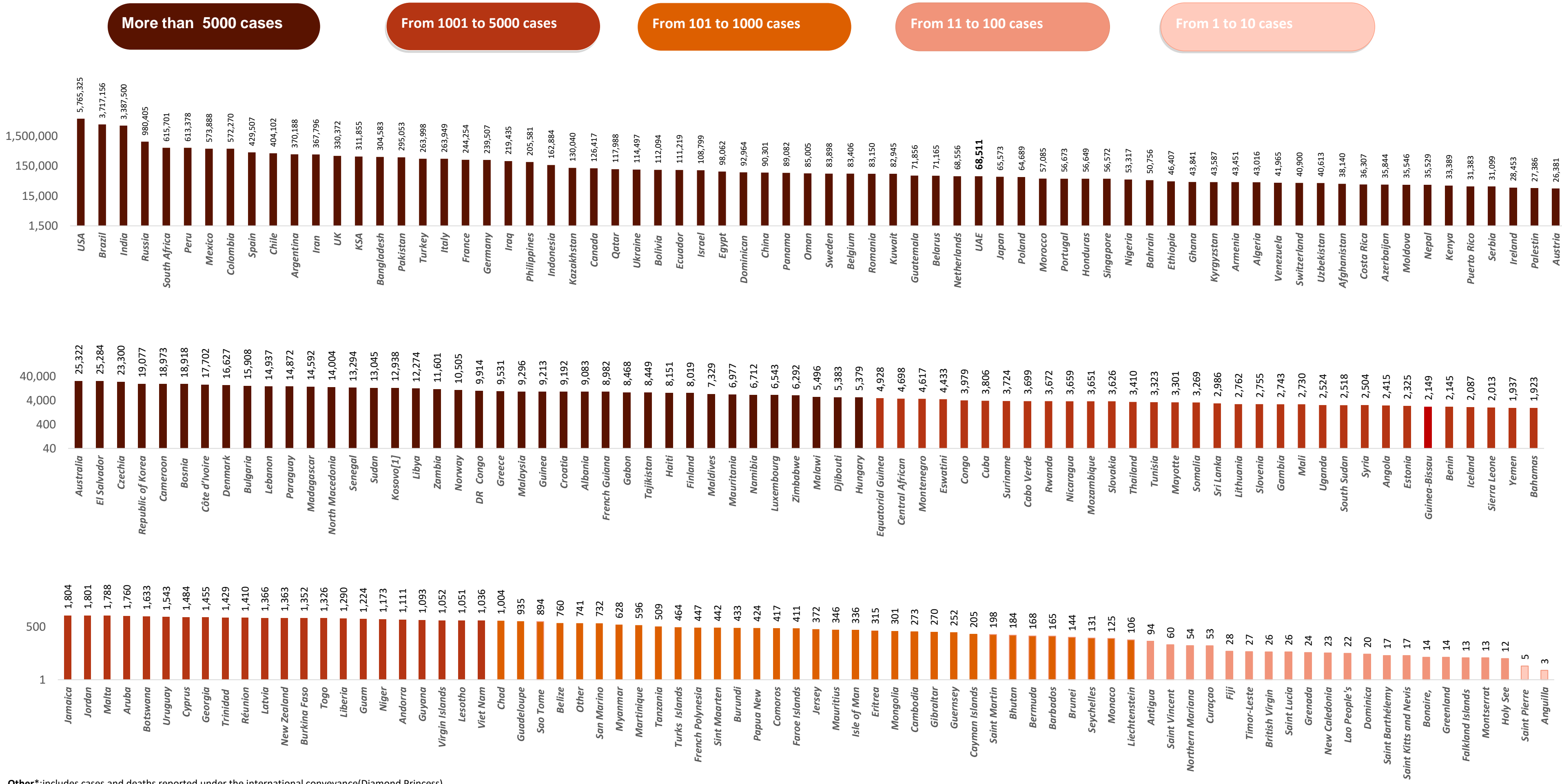
From 101 to 1000 cases

From 11 to 100 cases

From 1 to 10 cases

No confirmed cases

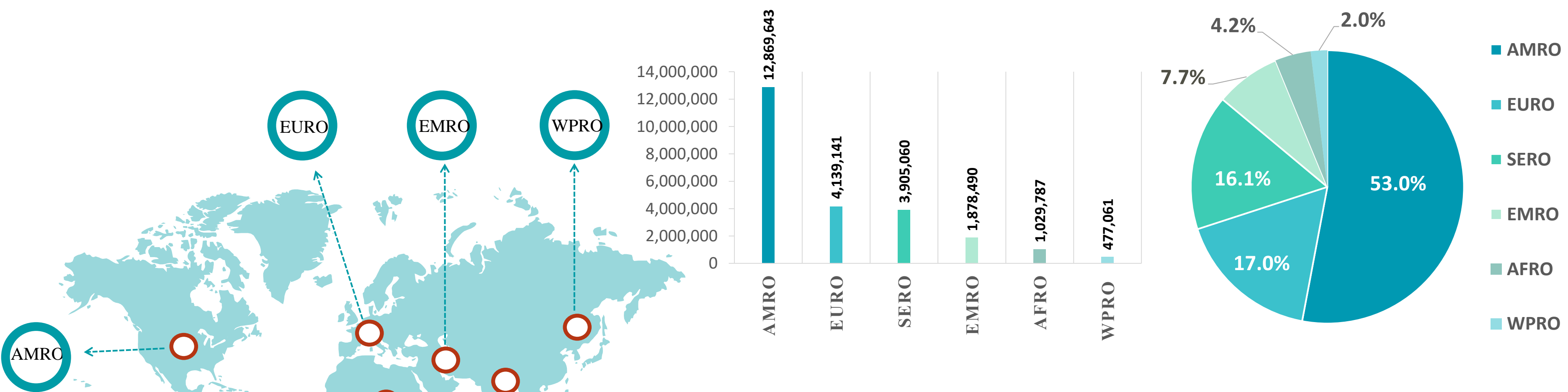
Figure 7B: Bar Chart Illustrates the Global Distribution of COVID19 Cases



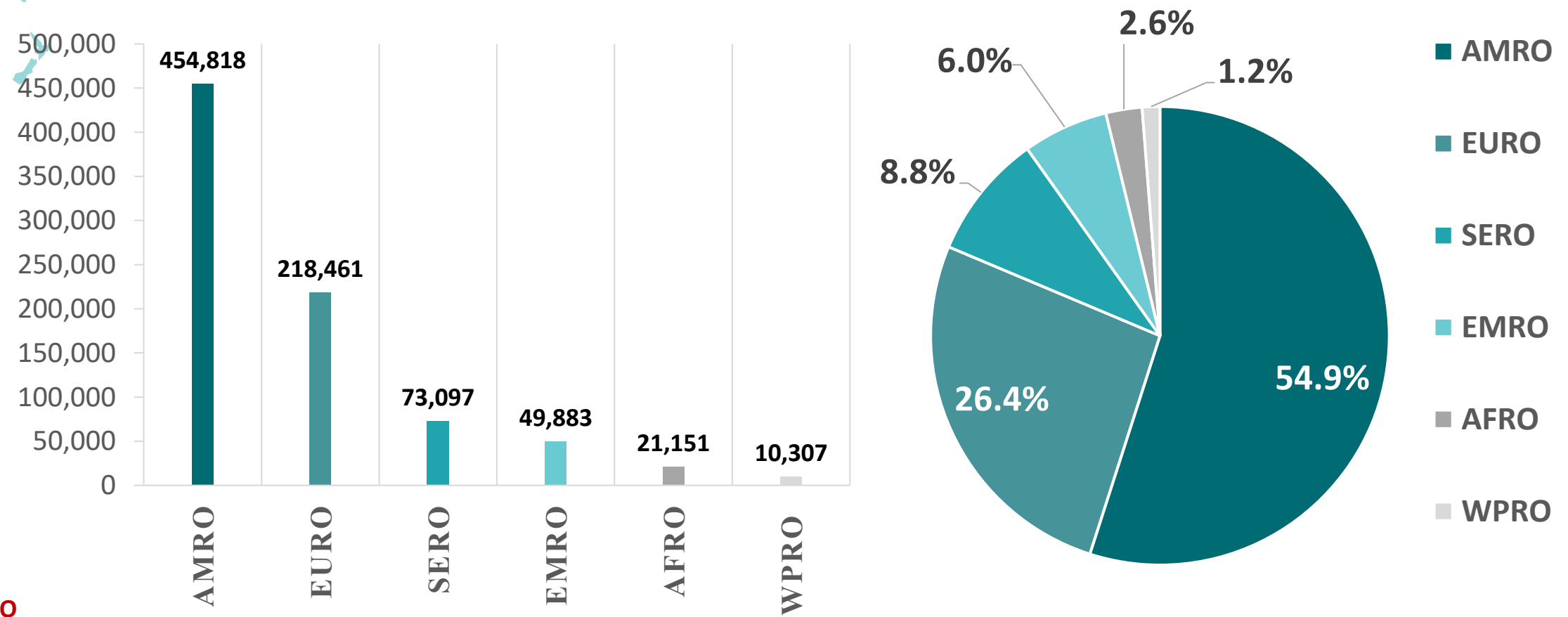
Other*: includes cases and deaths reported under the international conveyance(Diamond Princess)

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

INFECTED



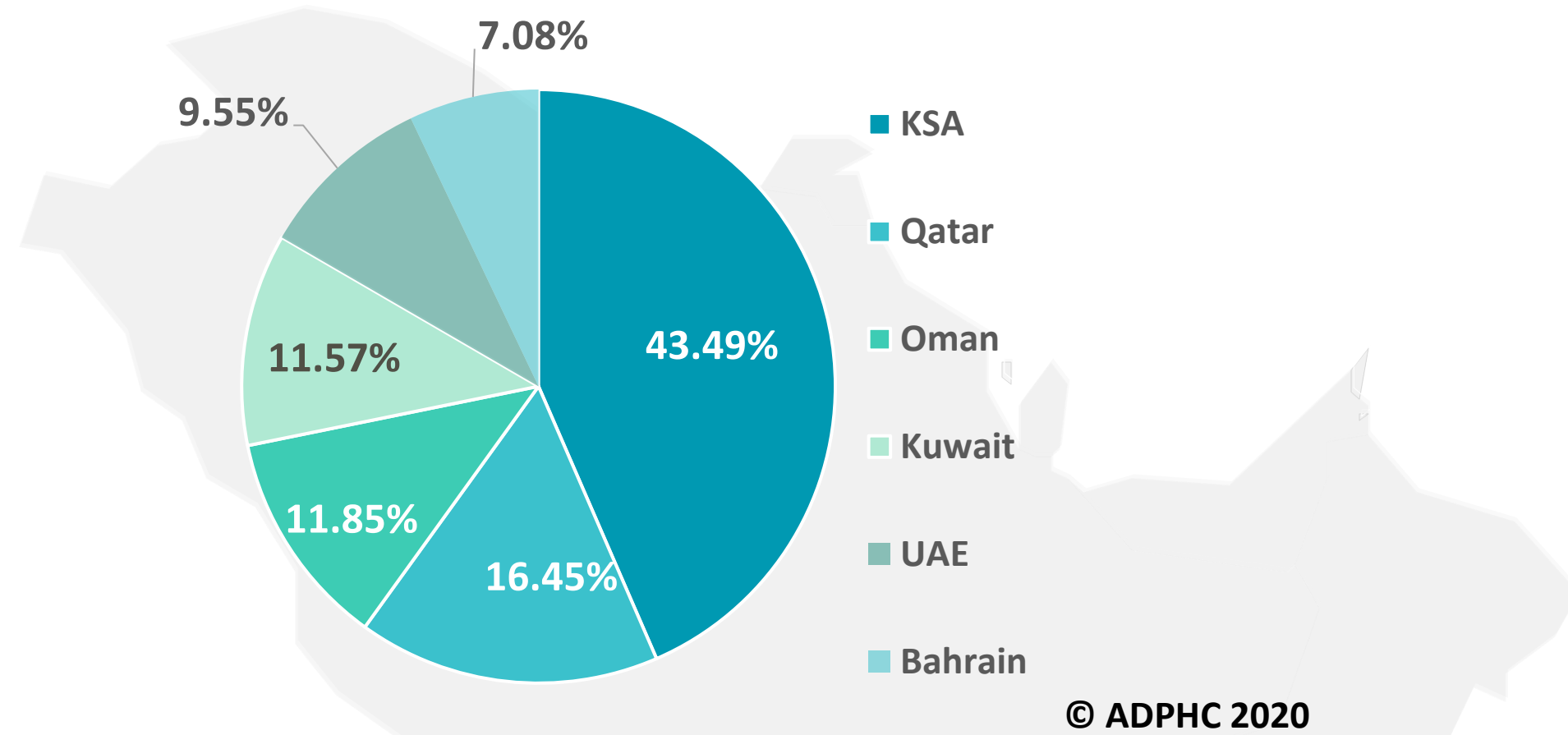
DEATHS



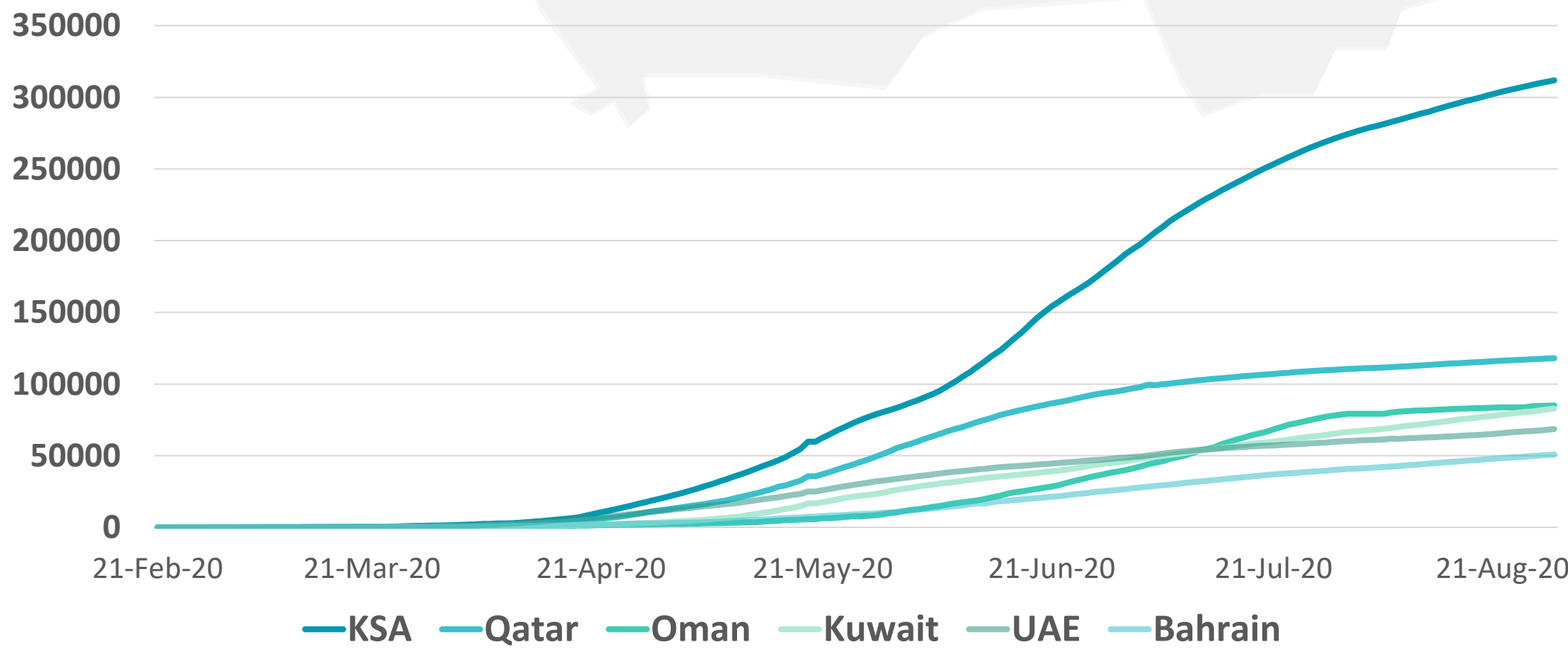
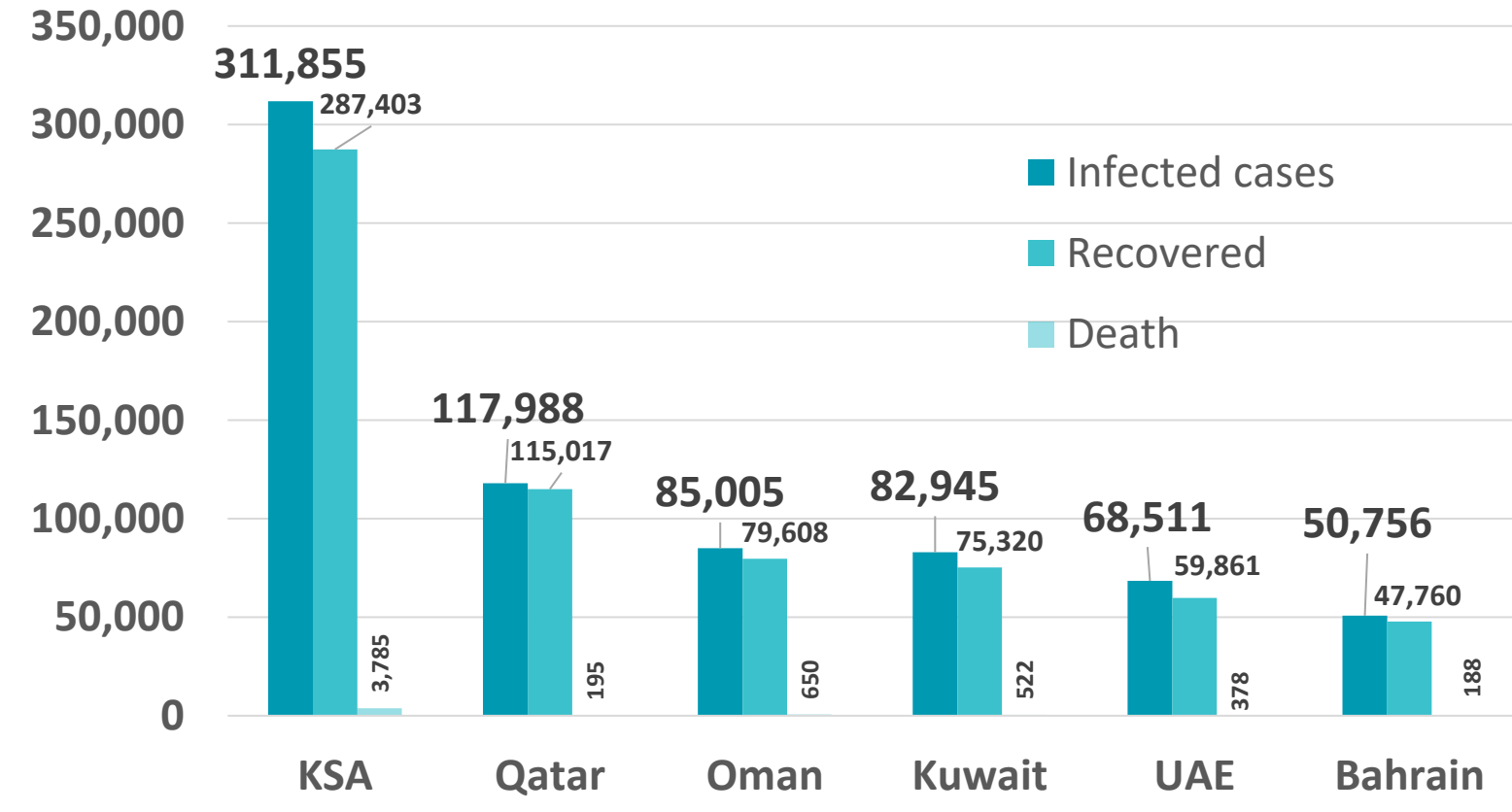
Graphs published by Abu Dhabi Public Health Center 2020 | Data resources: [WHO](#)

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

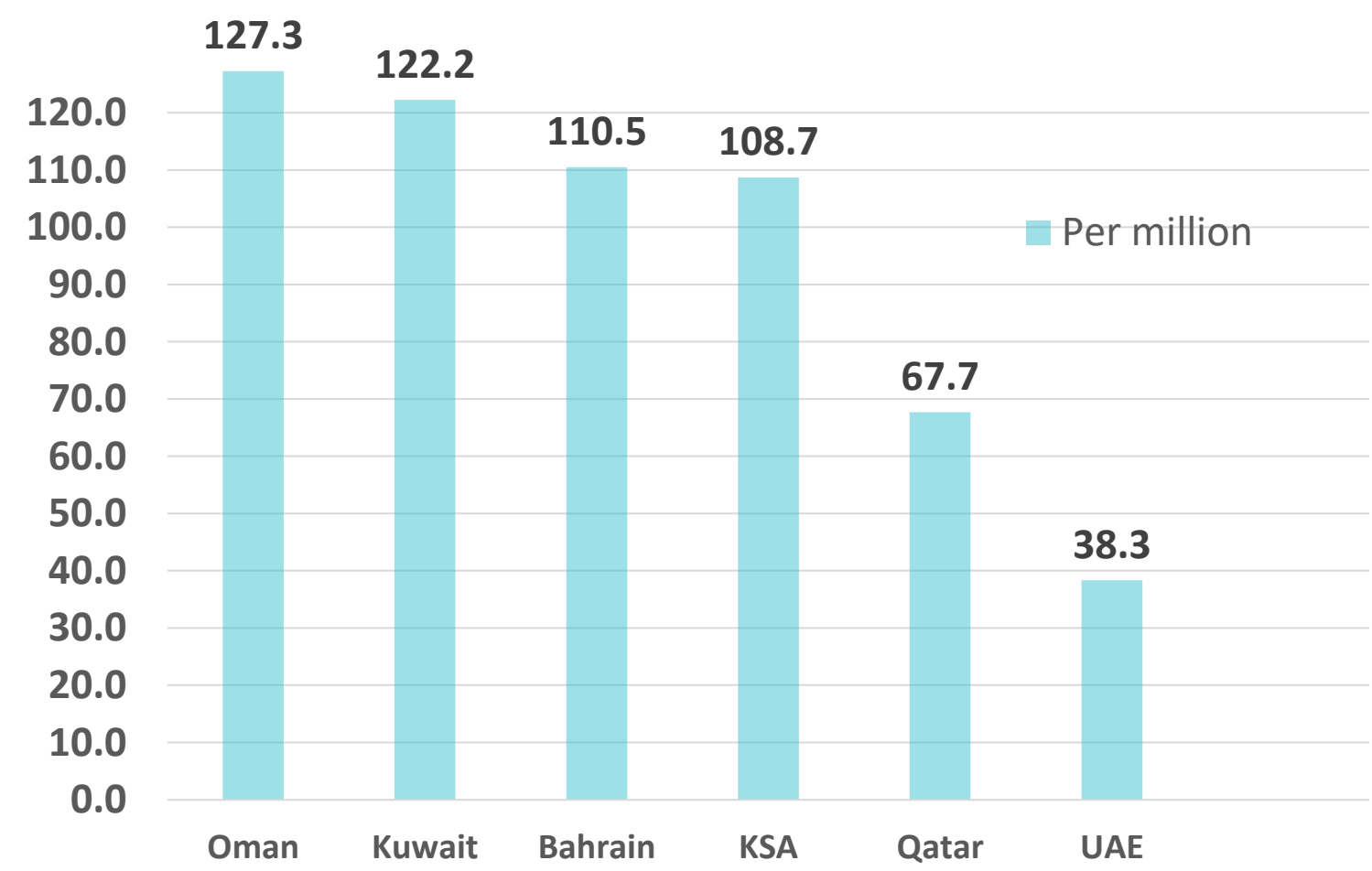


Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries

UAE



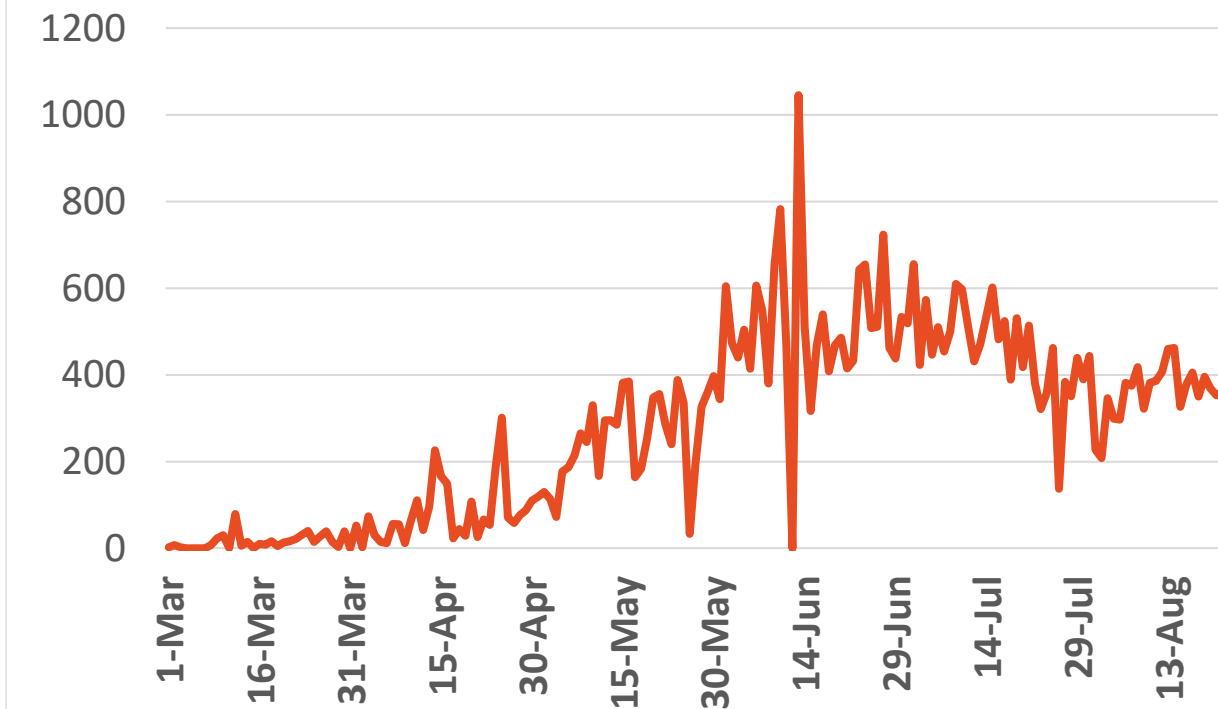
Source : National Emergency Crisis and Disaster Management Authority

KSA



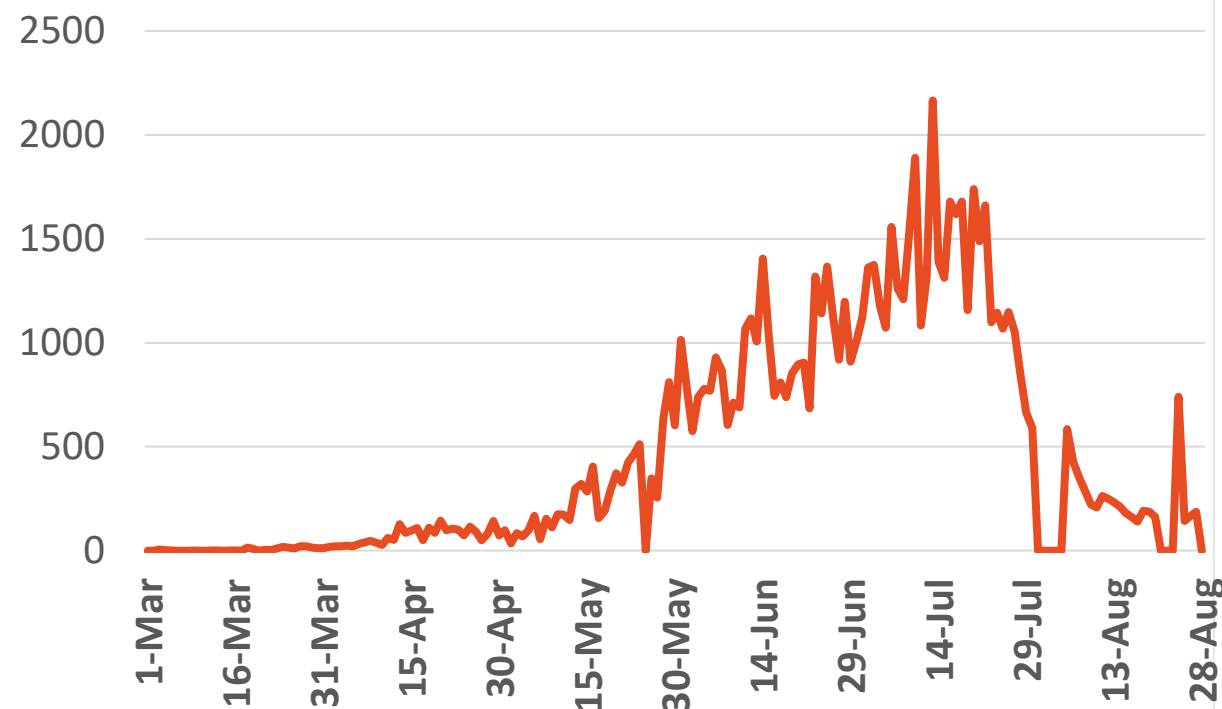
Source : KSA ministry of health

Bahrain



Source :WHO

Oman

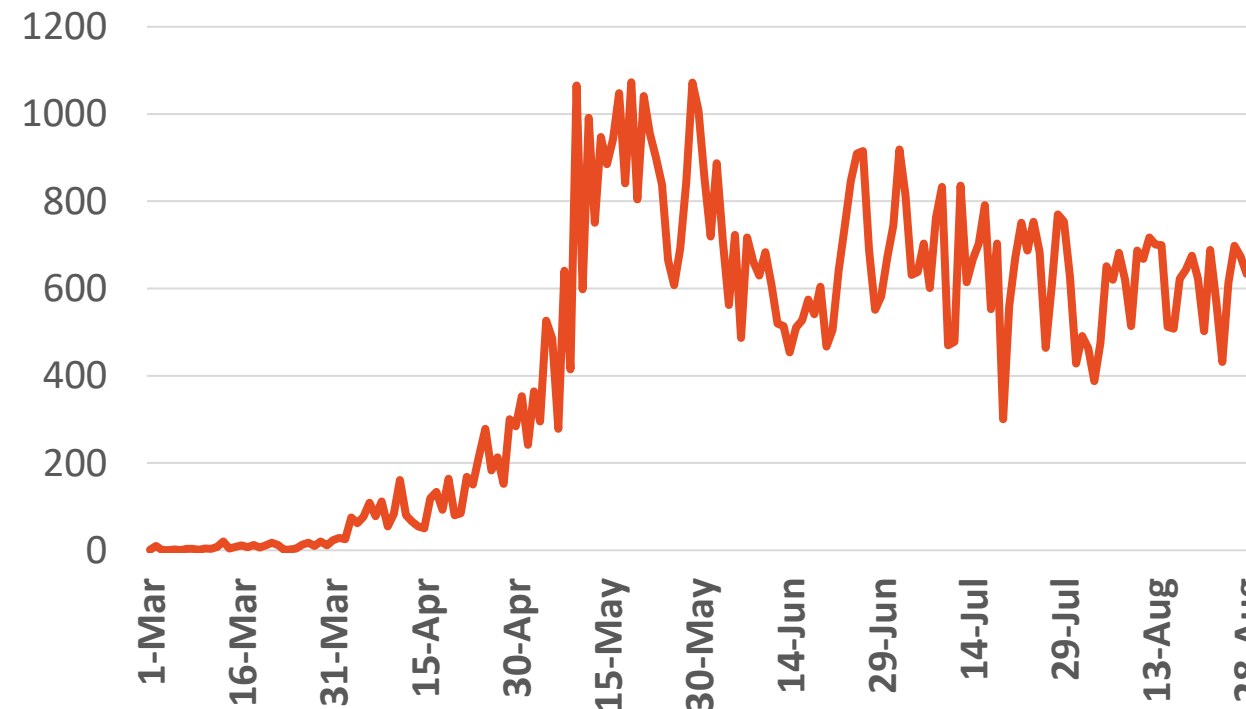


Source :Oman ministry of health

*No announced statistic data from 31 July to 4 August, 21 to 23 August & from 28 to 30 August
*No announced statistic data on weekends and official holidays.

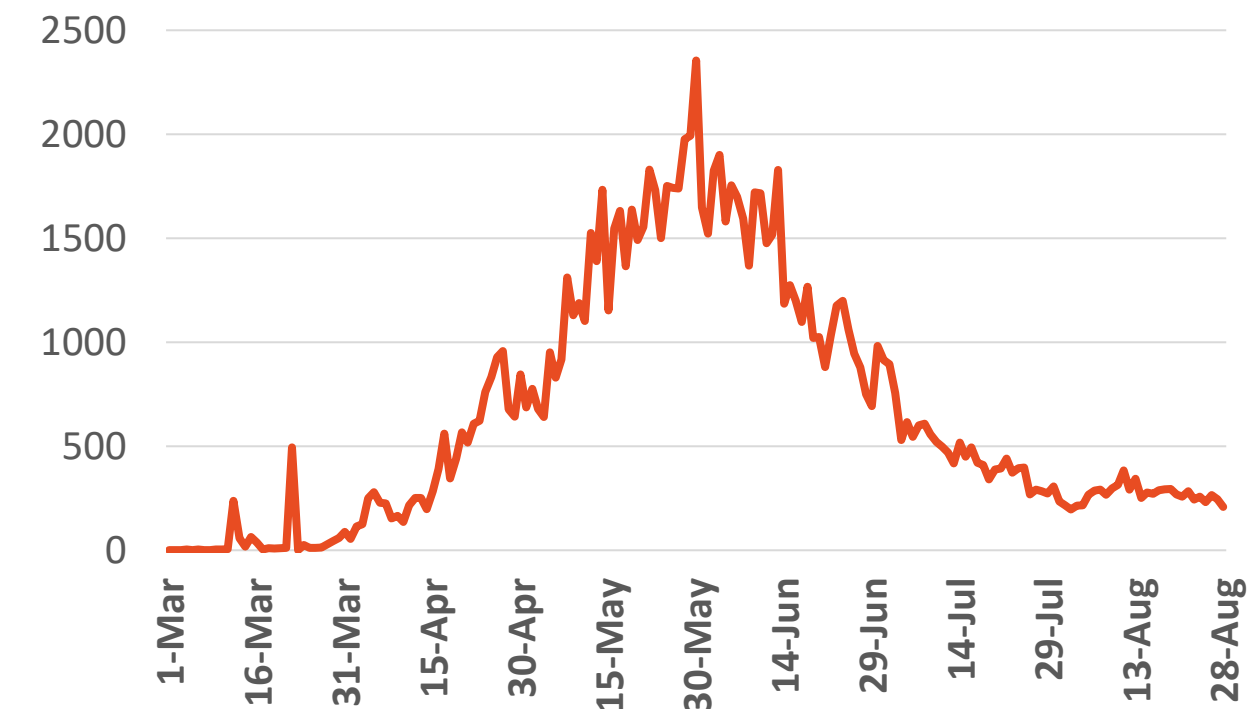
Kuwait

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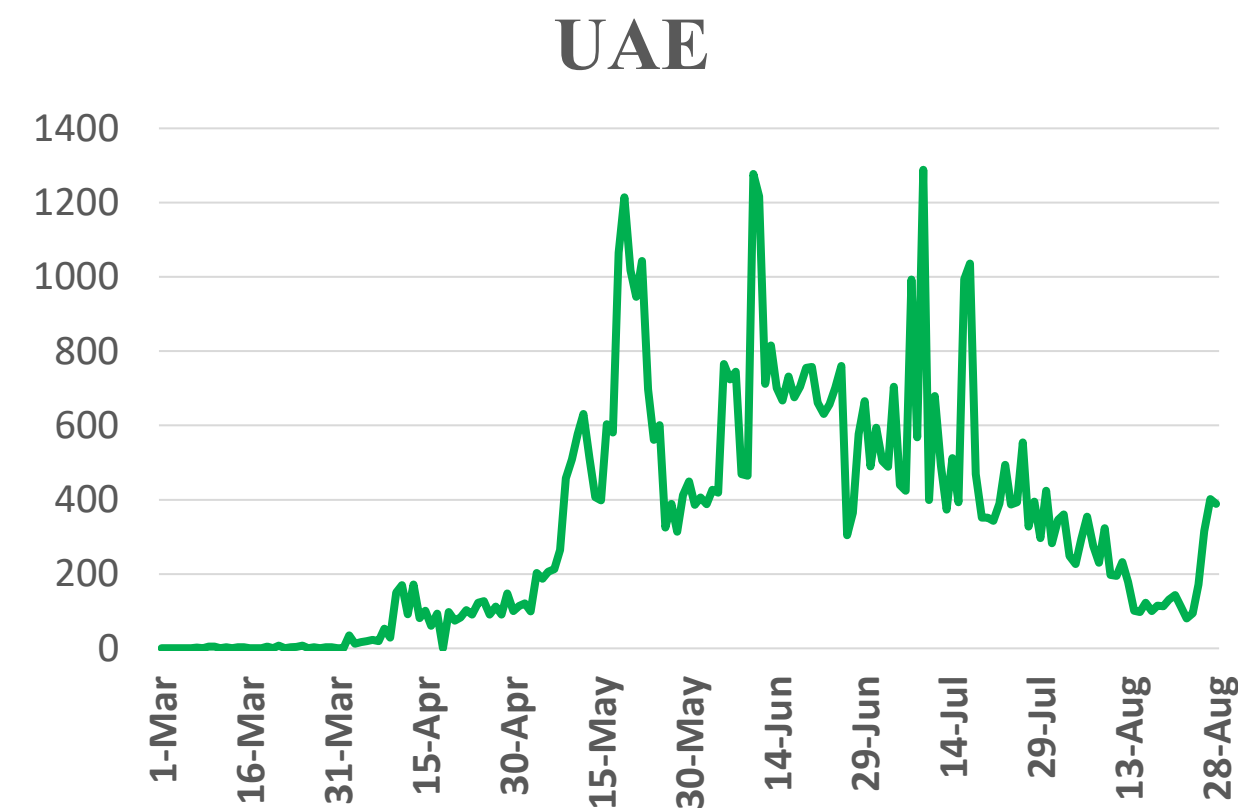
Source : Kuwait ministry of health

Qatar

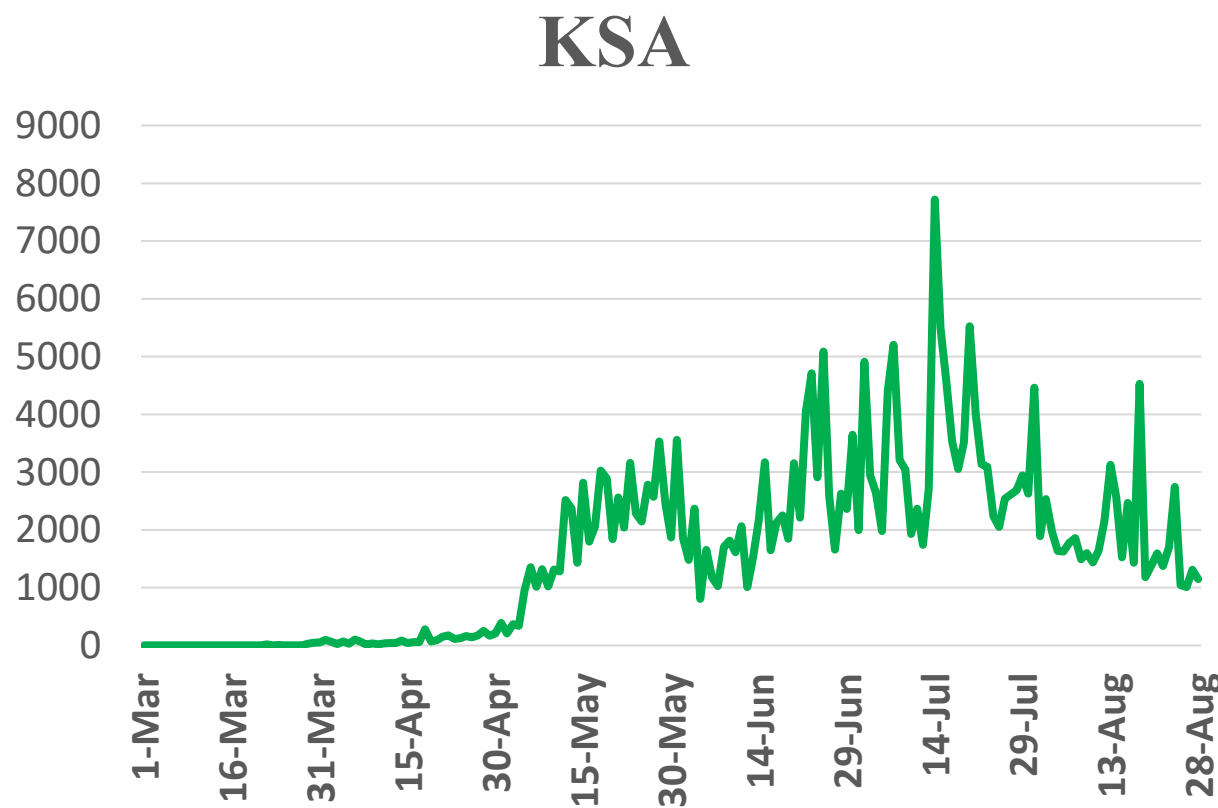


Source : Qatar ministry of health

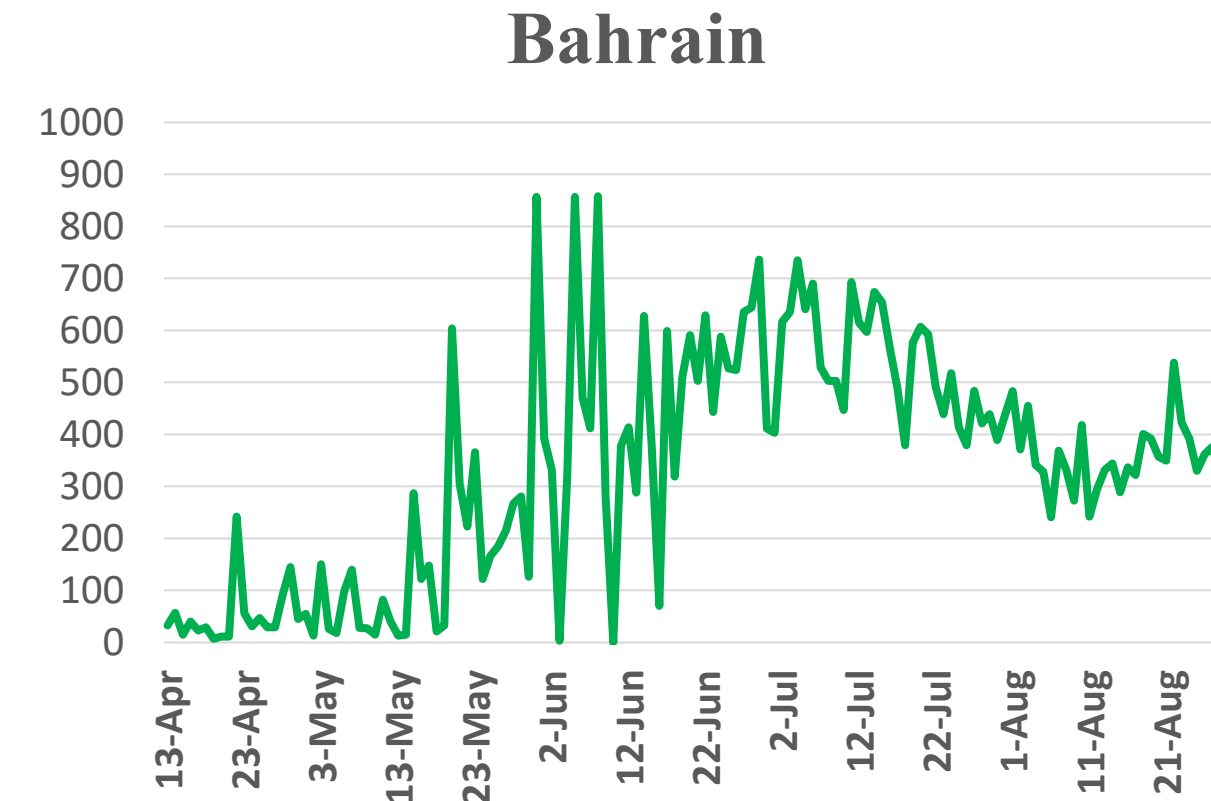
Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries



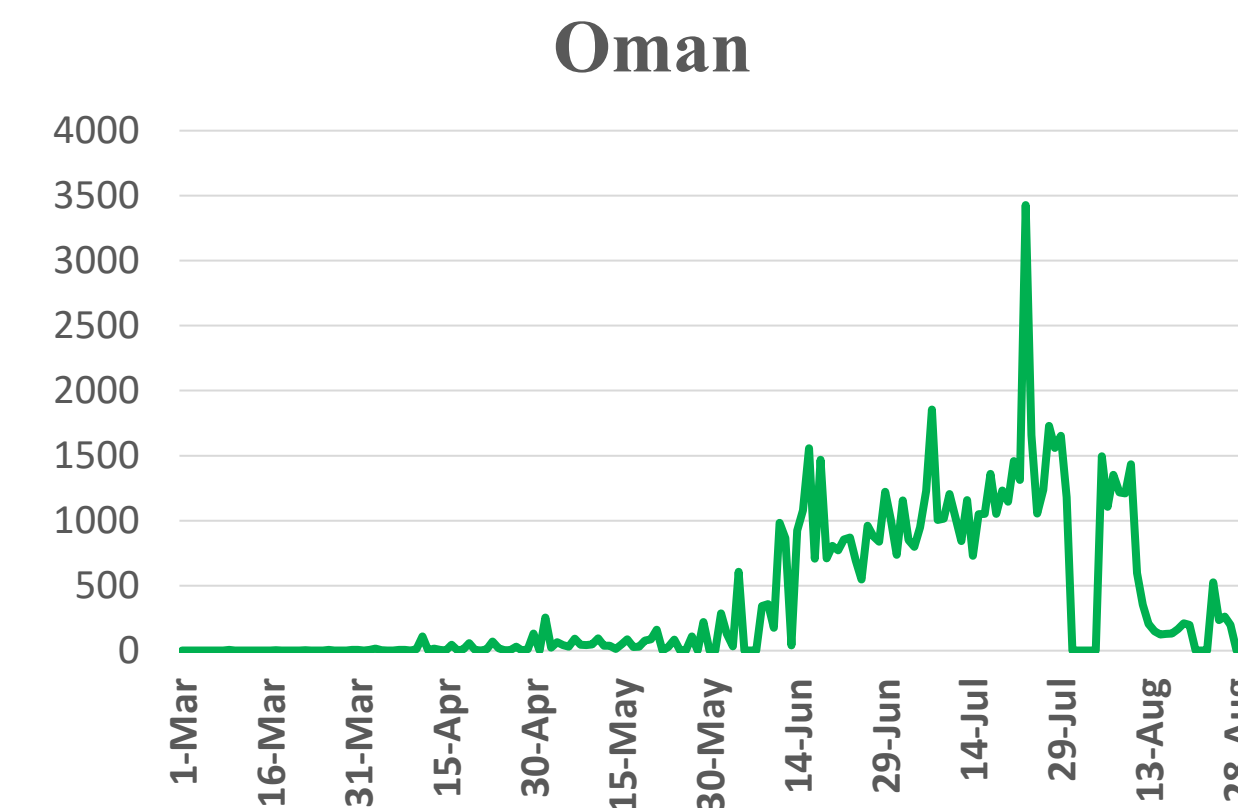
Source : National Emergency Crisis and Disaster Management Authority



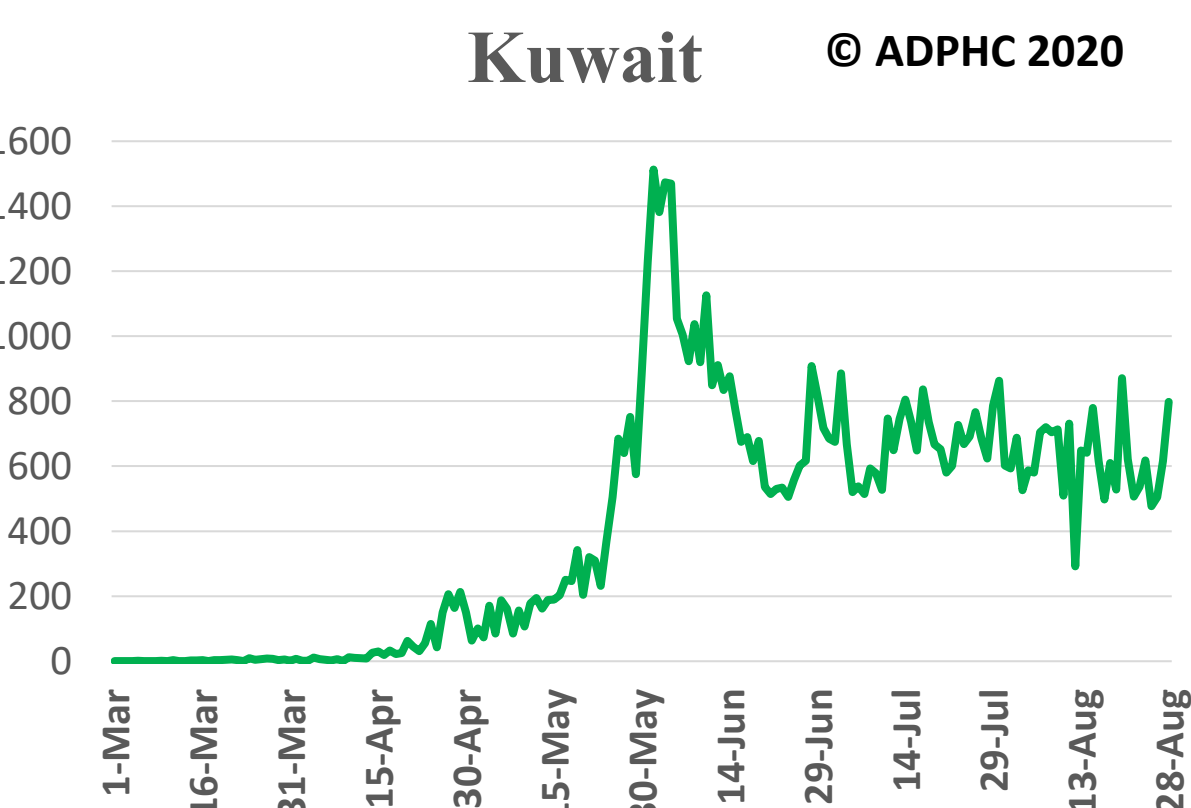
Source : KSA ministry of health



Source : GCCStat



Source : Oman ministry of health



Source : Kuwait ministry of health



Source : Qatar ministry of health

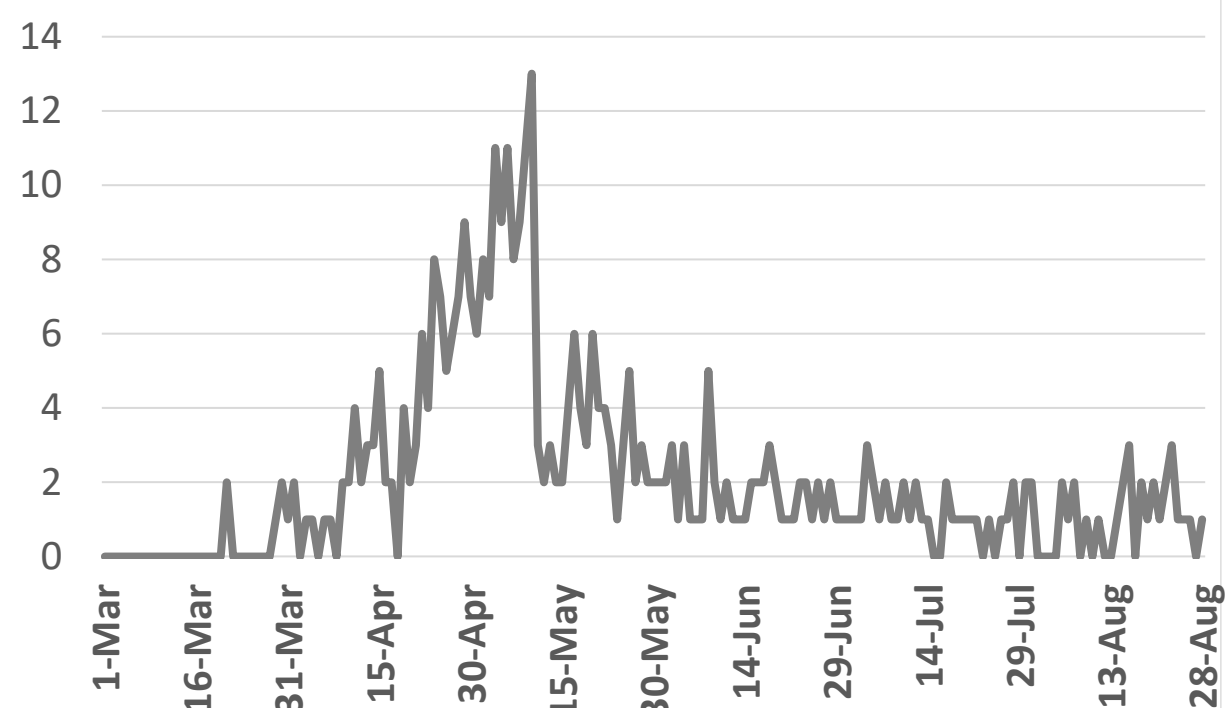
*No announced statistic data from 31 July to 4 August, 21 to 23 August & from 28 to 30 August

*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



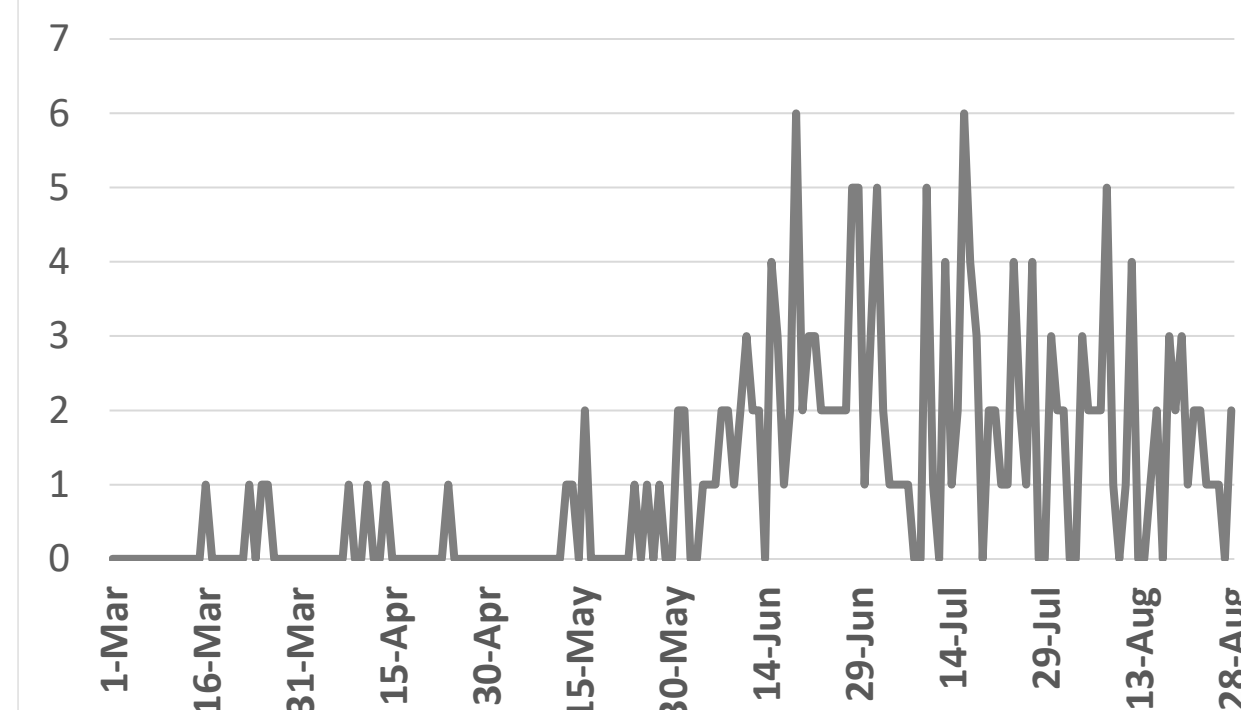
Source : National Emergency Crisis and Disaster Management Authority

KSA



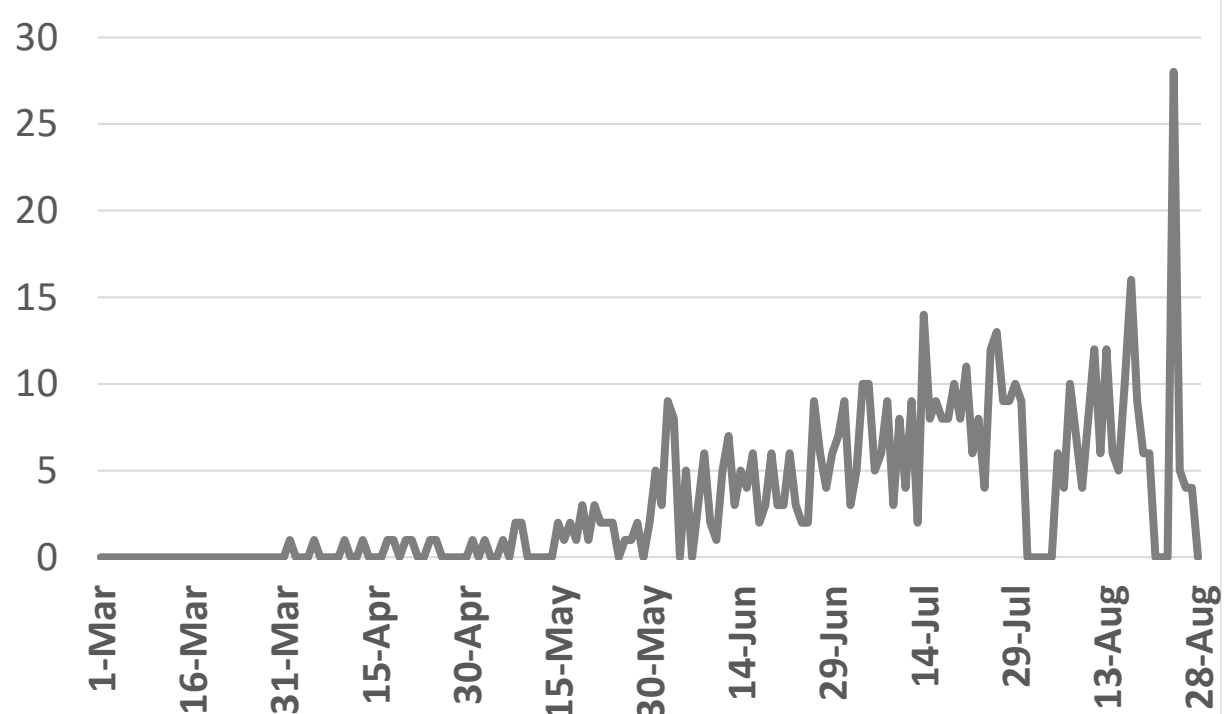
Source : KSA ministry of health

Bahrain



Source : WHO

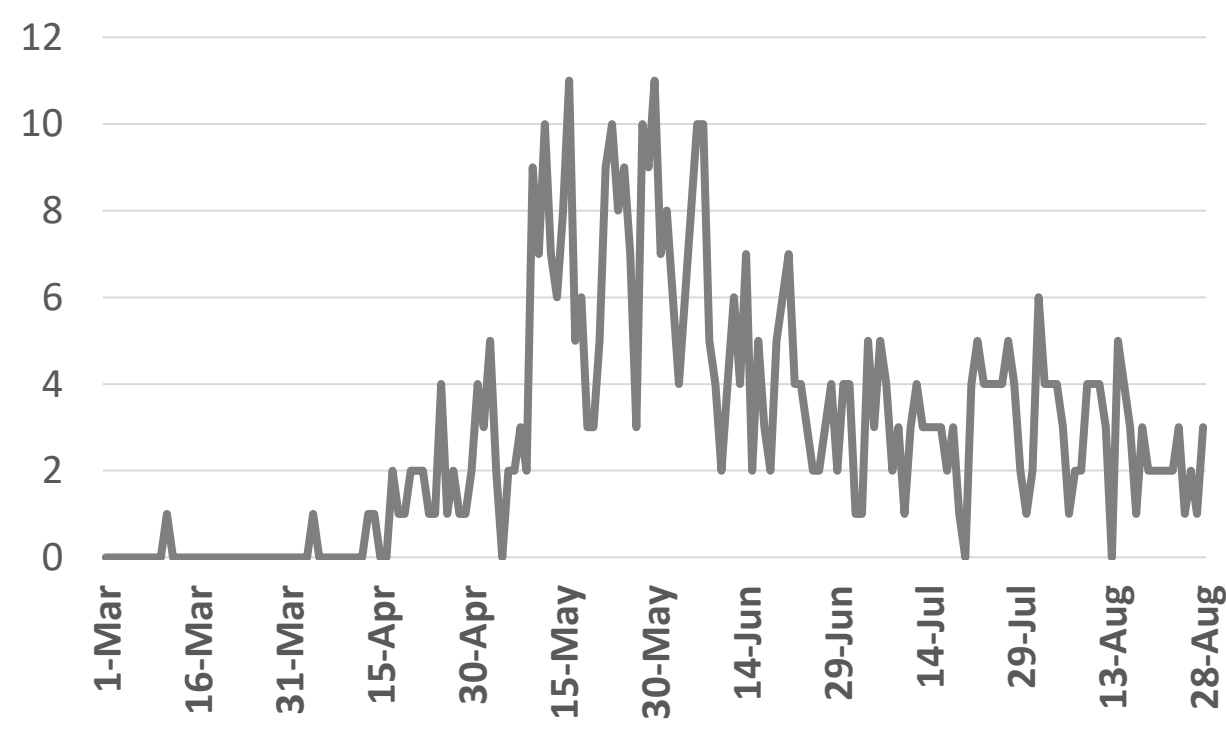
Oman



Source : Oman ministry of health

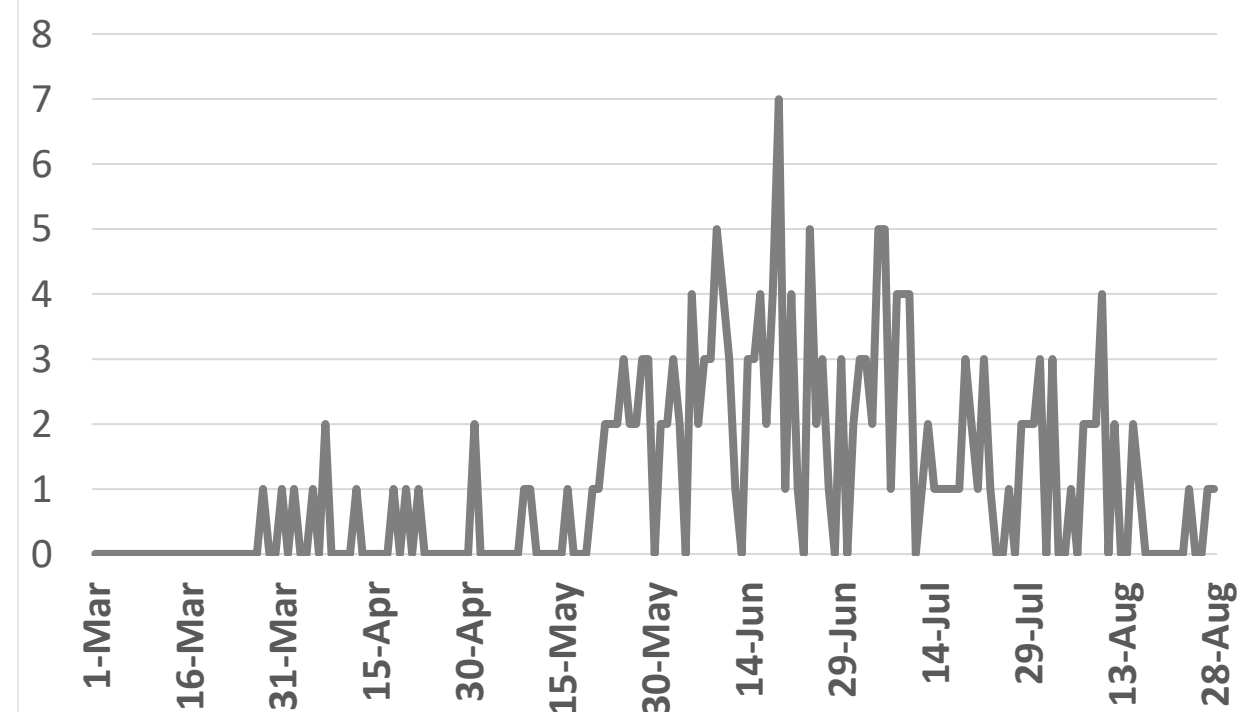
Kuwait

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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 to 23 August & from 28 to 30 August

*No announced statistic data on weekends and official holidays.





Article 1

Published

Age-Related Differences in Nasopharyngeal Severe Acute Respiratory Syndrome Coronavirus 2 (SARSCoV2) Levels in Patients With Mild to Moderate Coronavirus Disease 2019 (COVID19)

30 July 2020 [JAMA](#)

Introduction

- Although most children, present with mild to moderate disease compared with adults, they are still susceptible to infection with SARS-COV-2. However, the data are sparse on them being as a source of SARS-COV-2 spread.
- As public health systems are reopening schools and day-care, understanding the transmission potential in children is crucial.

Methodology

- In this cohort study, SARS-COV-2 reverse transcriptase-polymerase chain reaction (PCR) on nasopharyngeal swabs were collected at a pediatric tertiary medical center in Chicago, Illinois.
- It included 145 patients aged younger than 1 month to 65 years, who tested positive for SARS-COV-2 but with mild to moderate illness within 1 week of symptom onset. They included the first sample tested for patients with multiple samples.

Results

- As shown in figure 1, there are similar median Ct1 value for older children (11.1 [6.315.7]) and adults (11.0 [6.917.5]). While young children had a significantly lower median (interquartile range) CT values (6.5 [4.812.0]). The difference was approximate 10-fold to 100-fold greater amount of SARS-COV-2 in the upper respiratory tract of young children.
- There was a very weak correlation between symptom duration and Ct in the overall cohort.





Continued

Conclusion

- The results indicate that there are high amounts of SARS-CoV-2 viral RNA in younger children nasopharynx compared with older patients. Thus they are more prone to transmit. Consequently, they should be the target for the immunization efforts as SARS-CoV-2 vaccine become available.

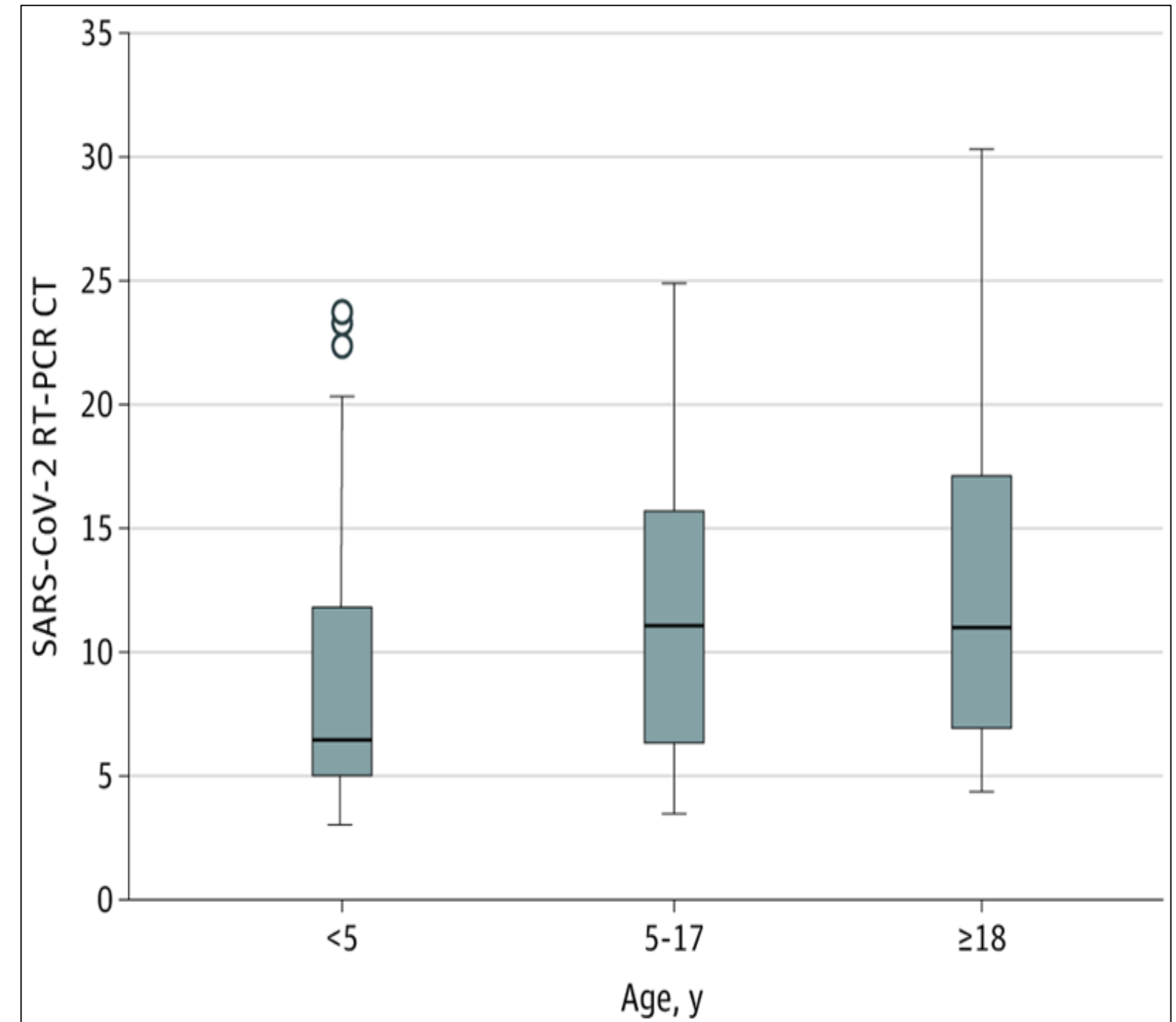


Figure1: Distribution of Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Reverse Transcriptase–Polymerase Chain Reaction (RT-PCR) Amplification Cycle Threshold (CT) Values From Nasopharyngeal Swabs Collected From Patients With Coronavirus Disease 2019.





PUBLIC HEALTH RESPONSE

Article 2

What Happens When COVID-19 Collides With Flu Season

Published

30 July 2020 [JAMA](#)

Introduction

- This editorial answers three main questions which are, if co-infection with flu would worsen COVID-19, if influenza vaccinations will protect against COVID-19, and lastly, would implement strategies to prevent spread COVID-19 reduce the burden of the coming flu season.
- Influenza leads to almost 69000 death in the U.S. in non-pandemic years, the past few months showed that COVID-19 is far deadlier and less predictable. This fall U.S. will deal with flu season as well as COVID-19.
- Quicker and more widely available testing are needed to distinguish between COVID-19 and influenza because:
 - Vital for disease surveillance (prognosis and implications).
 - Similar symptoms at the beginning.
 - Similar supportive care but different drug treatment.
 - Mistreatment will be wasteful and potentially harmful.
 - Require different mitigation efforts (isolation).

| | COVID-19 | Influenza |
|---|--|---|
| Remdesiver | A randomized controlled trial found that it is more effective in treating severe to moderate COVID-19 | There is no evidence of its effectiveness against patients with flu. |
| Dexamethasone | Recent preliminary reports found that it resulted in a lower 28 days -mortality rate among hospitalized patients with COVID-19. | <ul style="list-style-type: none"> • It is only used to treat patients with seasonal influenza when it is clinically indicated for other reasons. • 2 studies found that corticosteroids increase the mortality of patients with influenza. |
| Lopinavir-Ritonavir combination therapy | <ul style="list-style-type: none"> • On July 4, WHO discontinued lopinavir-ritonavir of its solidarity trail because it causes little or no mortality reduction in hospitalized patients with COVID-19. | |





Continued

Considering Coinfection

- Reported studies from China and the US found that limited patients tested positive for both COVID-19 and Influenza or respiratory pathogen. One study found that there increased the risk of prolonged hospital stay if covid19 patient is coinfecting with influenza.
- A recent study in JAMA involved 1996 patients in New York City found that only 42 (2.1%) were coinfecting with respiratory virus in general, and only one was coinfecting with influenza.
- During pandemic, regardless of a positive finding of other respiratory pathogens, coinfection with COVID-19 should be taking into consideration.

COVID-19 Protection from Flu Shots

- A study which is not yet peer-reviewed showed that there is no association between flu vaccination and COVID-19 mortality.
- Another non-peer-reviewed study conducted in Brazil with 92664 confirmed COVID-19 patients showed that immunized patients with influenza vaccine had better outcomes than those who did not.

Can We Curb Flu Along With COVID?

- In 2020, there was a decline in other respiratory diseases compared with other seasons, this was confirmed, with studies from Taiwan, Japan and, Qatar due to 2 causes:
 - Applying strategies to minimize COVID-19 spread and high awareness.
 - People with flu are not being counted or seeking care because of overwhelmed healthcare systems with COVID-19.





Article 3

Modeling Contact Tracing Strategies for COVID-19 in the Context of Relaxed Physical Distancing Measures

Published

21 August 2020 [JAMA](#)

This study examined the potential of contact tracing to reduce COVID-19 under relaxed physical distancing strategy.

Background

- Contact tracing, which entails identifying and monitoring people who have been in close contact with individuals with confirmed diagnoses and encouraging them to self-isolate and quarantine, is recommended as a key component of COVID-19 control strategies.

Methodology

- This mathematical modelling used a simple deterministic model of SARS-CoV-2 transmission.
- Individuals with infection transmit to others based on symptom status, detection of infection, and whether they are traced contacts of a known infected person.
- Different scenarios of contact tracing were used to quantify the percentage reductions in the effective reproductive number (R) in comparison with a scenario without contact tracing.

Results

- When community detection of symptomatic index cases and tracing of contacts were less than 50%, simulated contract tracing programs did not reduce R by more than 10%.
- In scenarios with rates of detection and tracing that were both greater than 50%, testing asymptomatic contacts increased the program benefit by a median factor of 1.28 (range, 1.04-2.07), with a larger relative increase when isolation and quarantine efficacy were lower. The contact tracing scenario with the greatest benefit reduced R by 46%.
- If the percentage of infections without symptoms was lower (20% vs base case of 40%), the benefit of contact tracing was greater, by a median factor of 1.22 (range, 1.04-1.41).



Continued

Public Health Message

- Contact tracing could support partial relaxation of physical distancing measures but not a full return to levels of contact before lockdown.
- Contact tracing must be implemented alongside prompt and extensive community case detection, and a high proportion of contacts must be reached.
- The benefits of contact tracing depend substantially on adherence to isolation and quarantine among individuals who are traced.
- Testing contacts without symptoms could improve program benefits by identifying new cases to trace and potentially improving quarantine adherence.
- Prompt testing, diagnosis, and notification of individuals with infection are needed to ensure that contacts can be traced and quarantined early enough to prevent transmission.

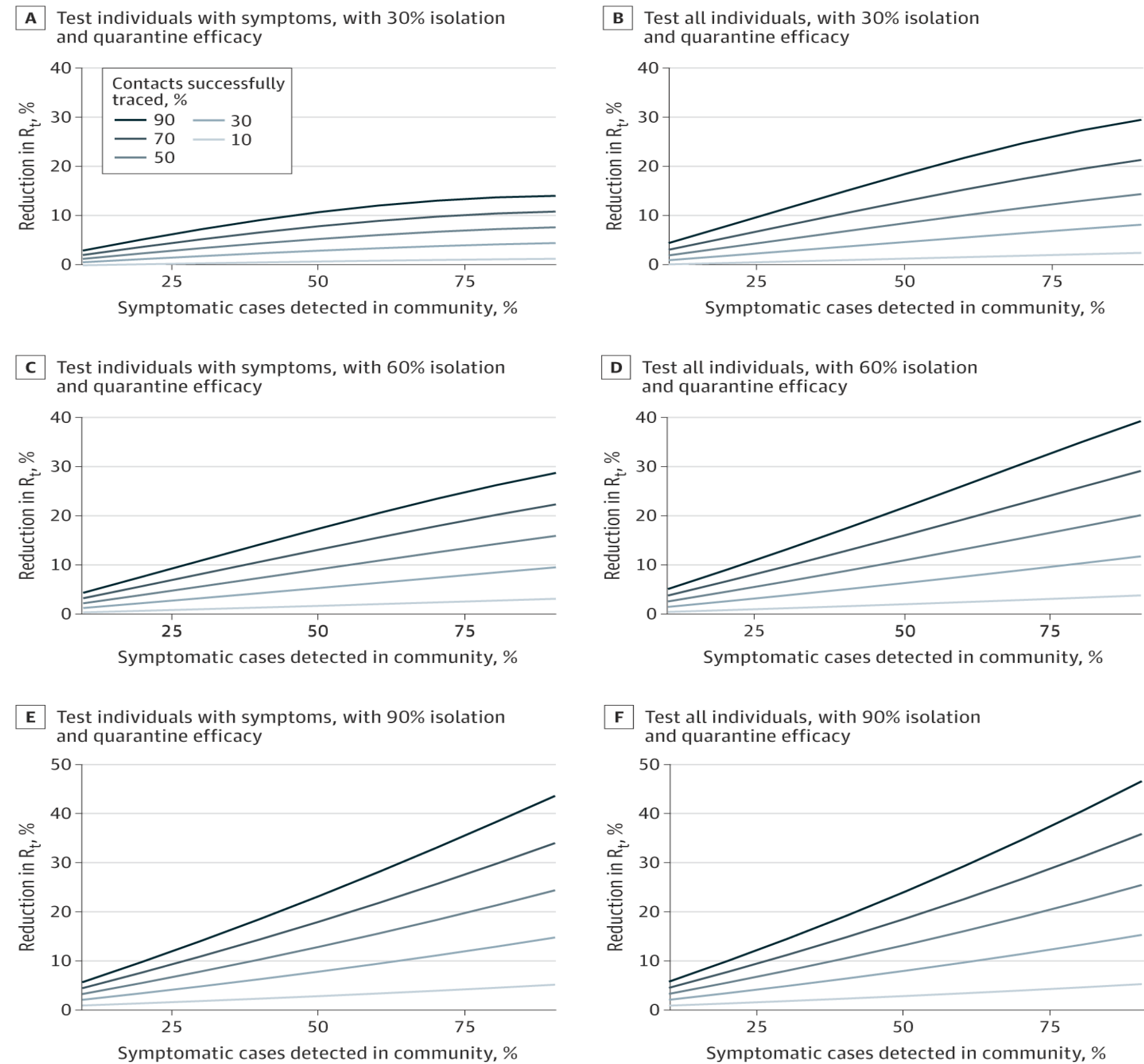


Figure1: Reductions in the Effective Reproductive Number (R_t) Associated With Contact Tracing Strategies Under Varying Assumptions Regarding Key Program Features.

Outcomes measured as percentage reductions in R_t in the contact tracing scenario relative to R_t without contact tracing. Isolation and quarantine efficacy refers to the level of reduction in transmission rates from traced, undetected contacts. Modeled estimates of relative reductions do not depend on current levels of R_t .



THANK YOU

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