

# SCIENTIFIC RESEARCH MONITORING ON COVID-19

28 AUGUST 2020

For accessing the full series of published scientific reports please visit the following link:  
<https://www.doh.gov.ae/ar/covid-19/Healthcare-Professionals/Scientific-Publication>

# SCIENTIFIC RESEARCH MONITORING ON COVID-19

## (ISSUE 208)

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](mailto: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).

Click on icon to view content

## Clinical Features

**COVID-19 Related Stroke in Young Individuals**

## Epidemiology

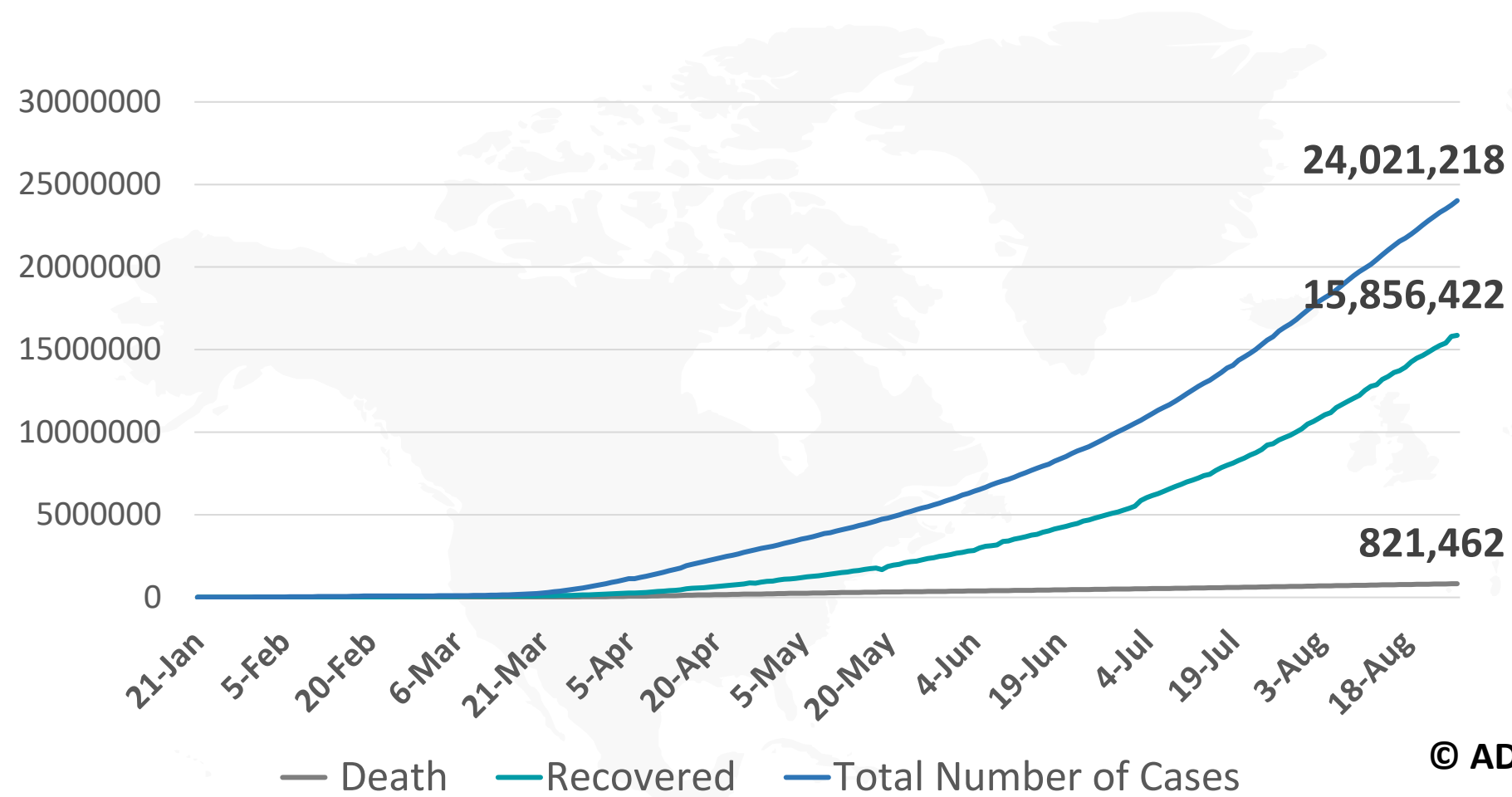
**Comparison of Molecular Testing Strategies for COVID-19 Control: A Mathematical Modelling Study**

## Treatment

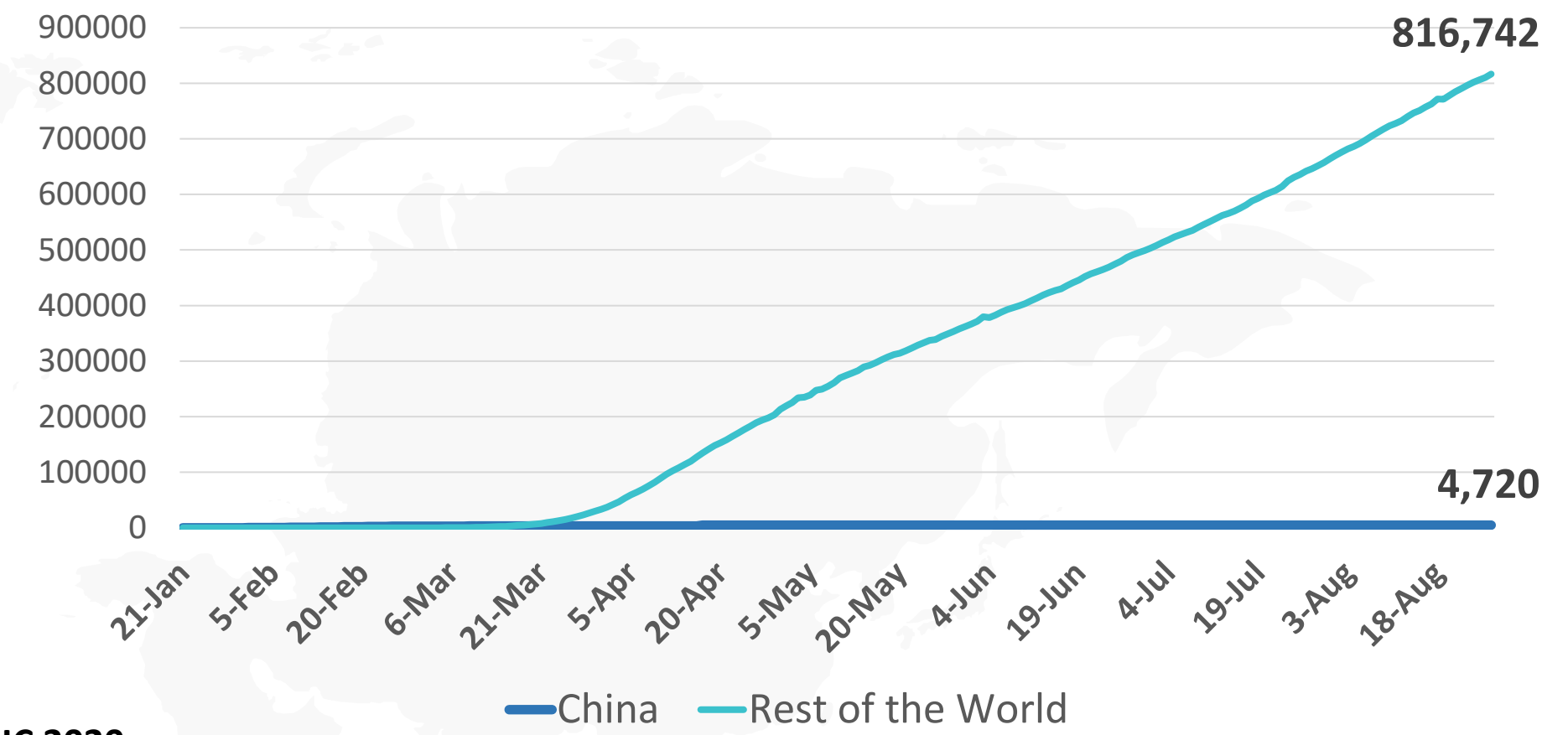
**Janus Kinase-Inhibitor and Type I Interferon Ability to Produce Favorable Clinical Outcomes in COVID-19 Patients: A Systematic Review and Meta-Analysis**



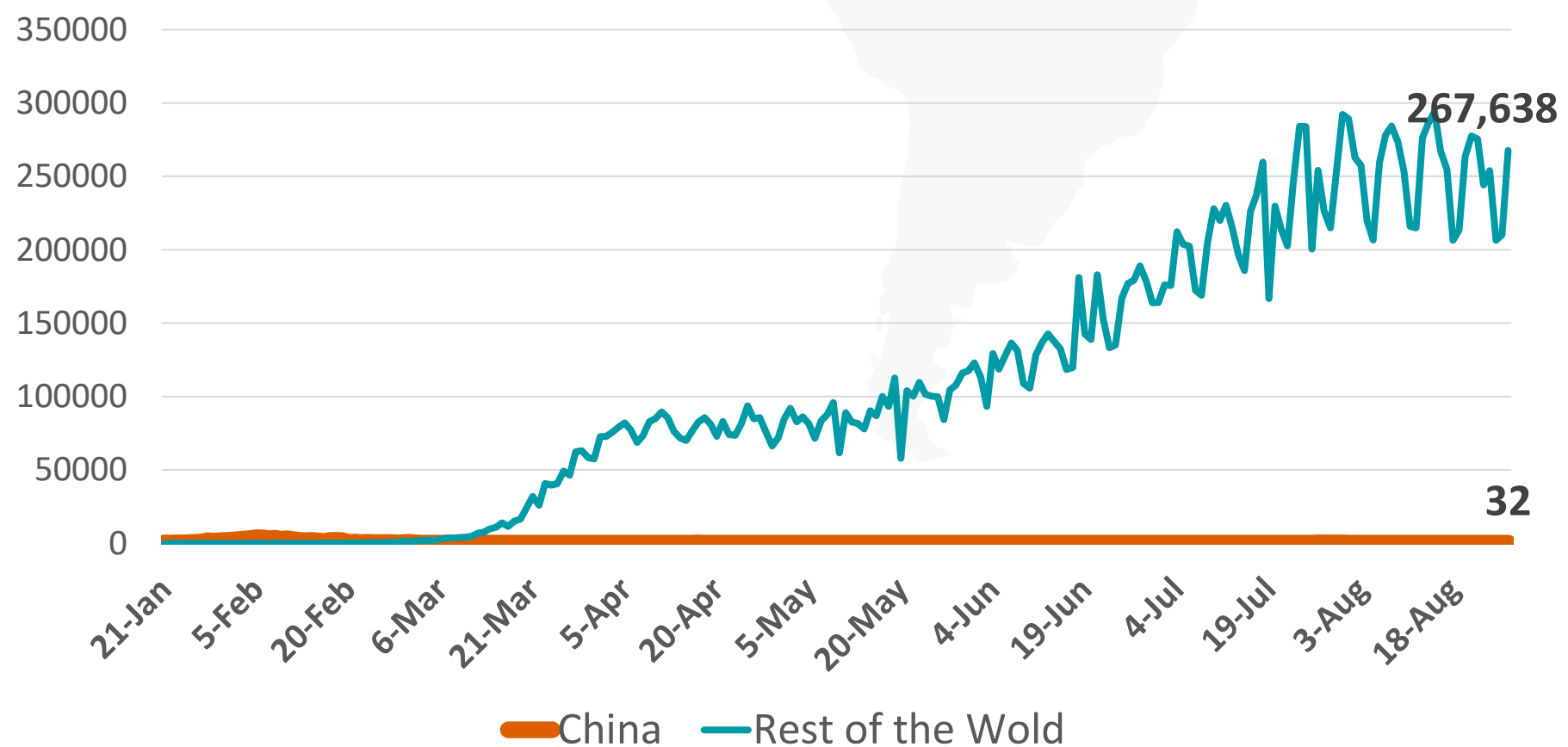
**Figure 1: Total Number of Infected, Recovered, and Death Cases**



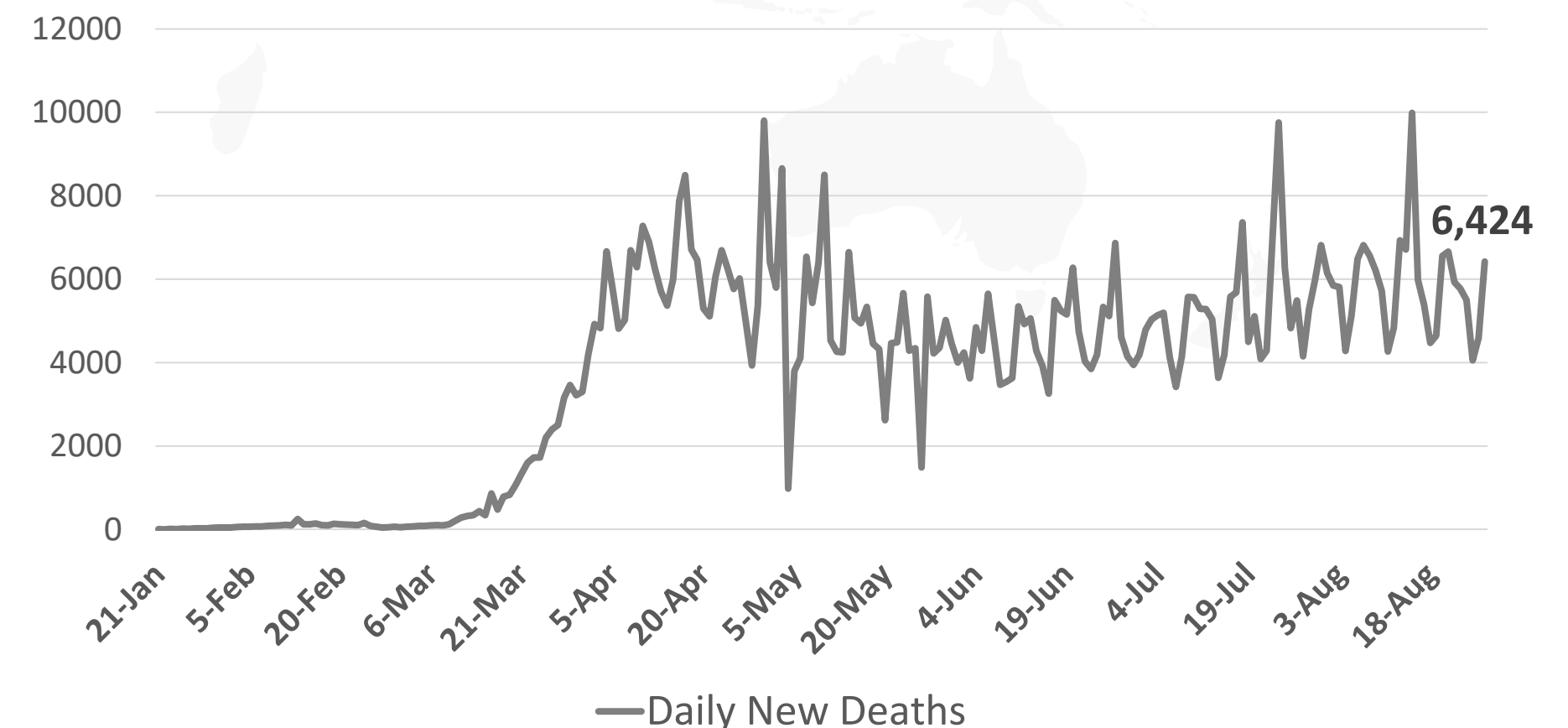
**Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)**



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

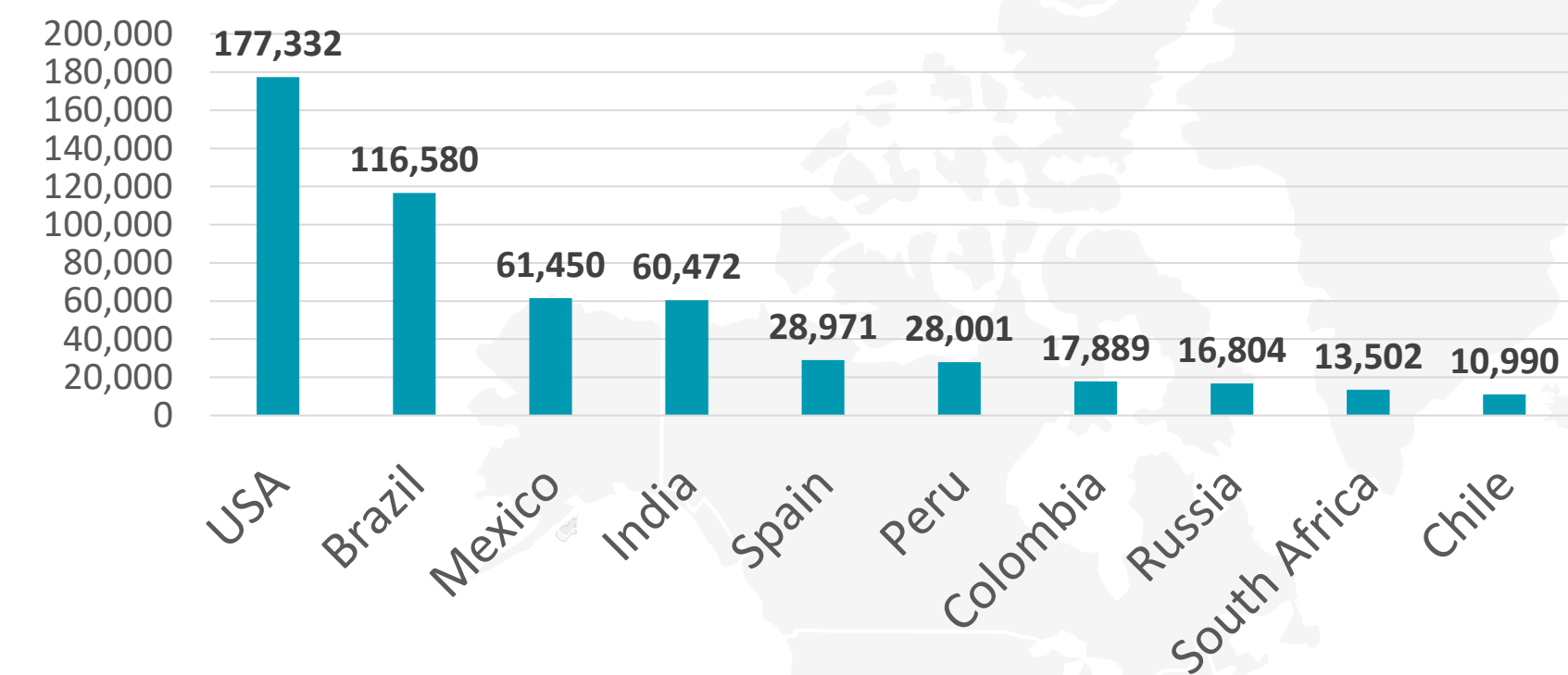


**Figure 4: Global Daily New Deaths Due to COVID-19 (china and rest of the world)**

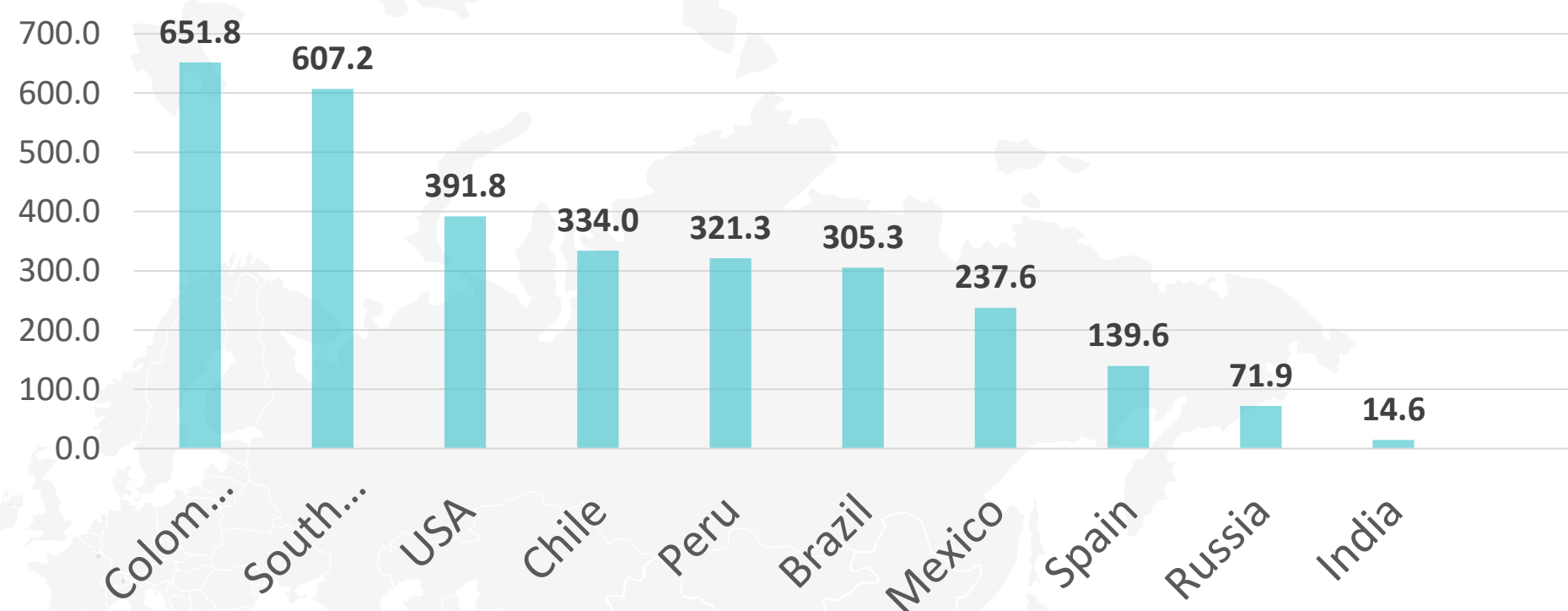


## Figure 5: Top 10 Countries in the Total Number of Cases Due to COVID-19

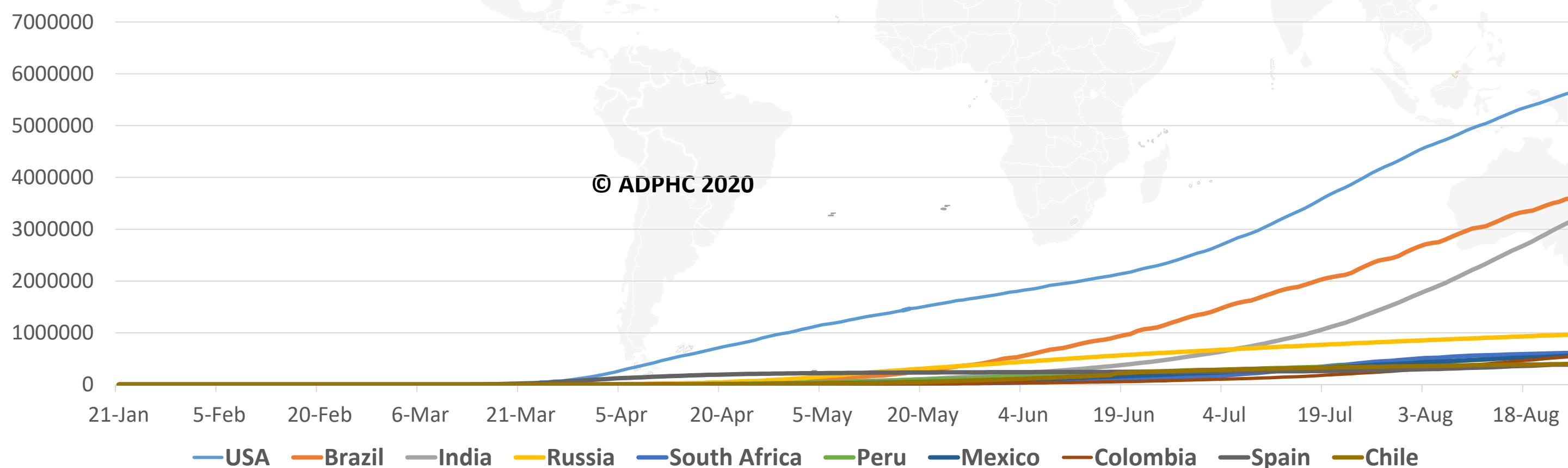
### TOTAL DEATHS



### DEATHS PER MILLION

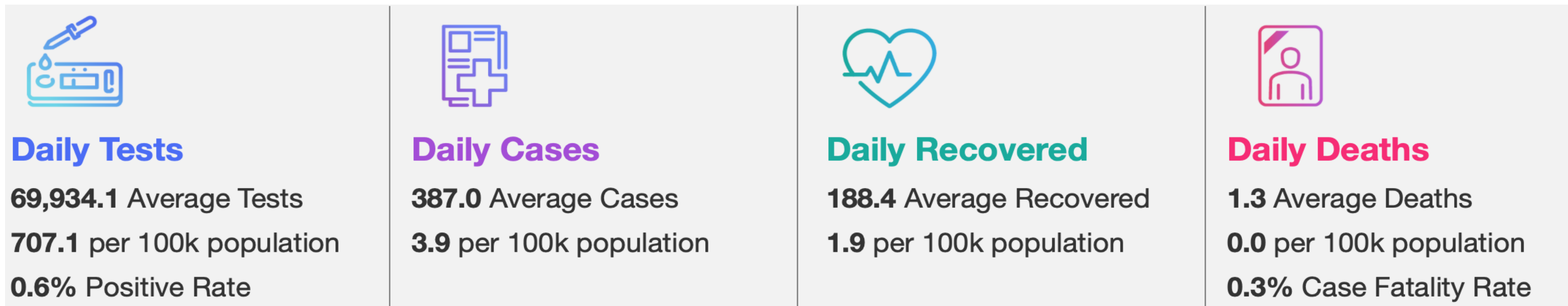


### TOTAL INFECTED CASES

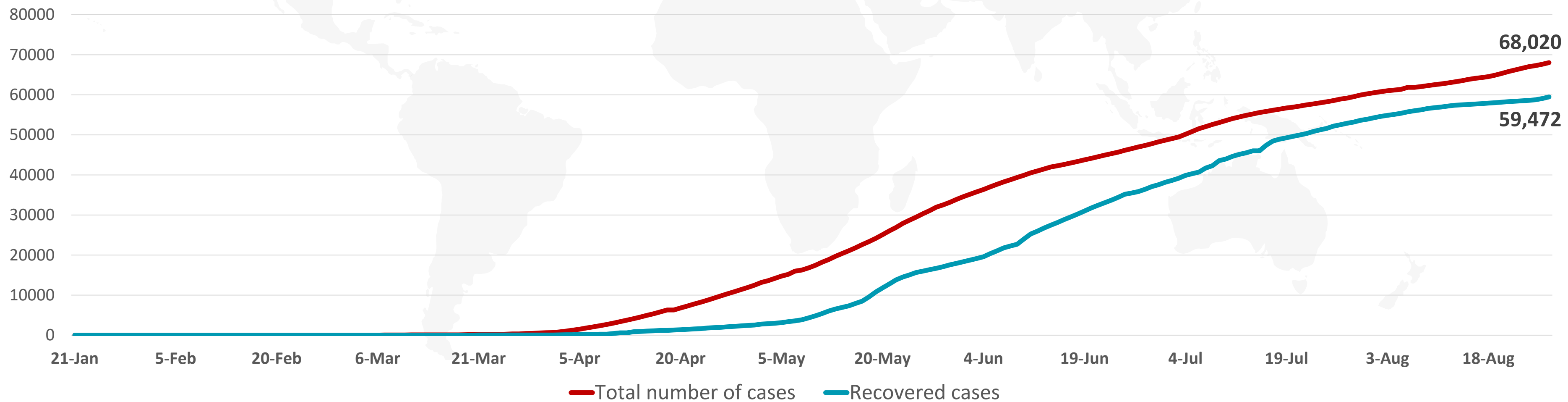


USA	5,719,841
Brazil	3,669,995
India	3,310,234
Russia	975,576
South Africa	615,701
Peru	607,382
Mexico	568,621
Colombia	562,128
Spain	419,849
Chile	402,365

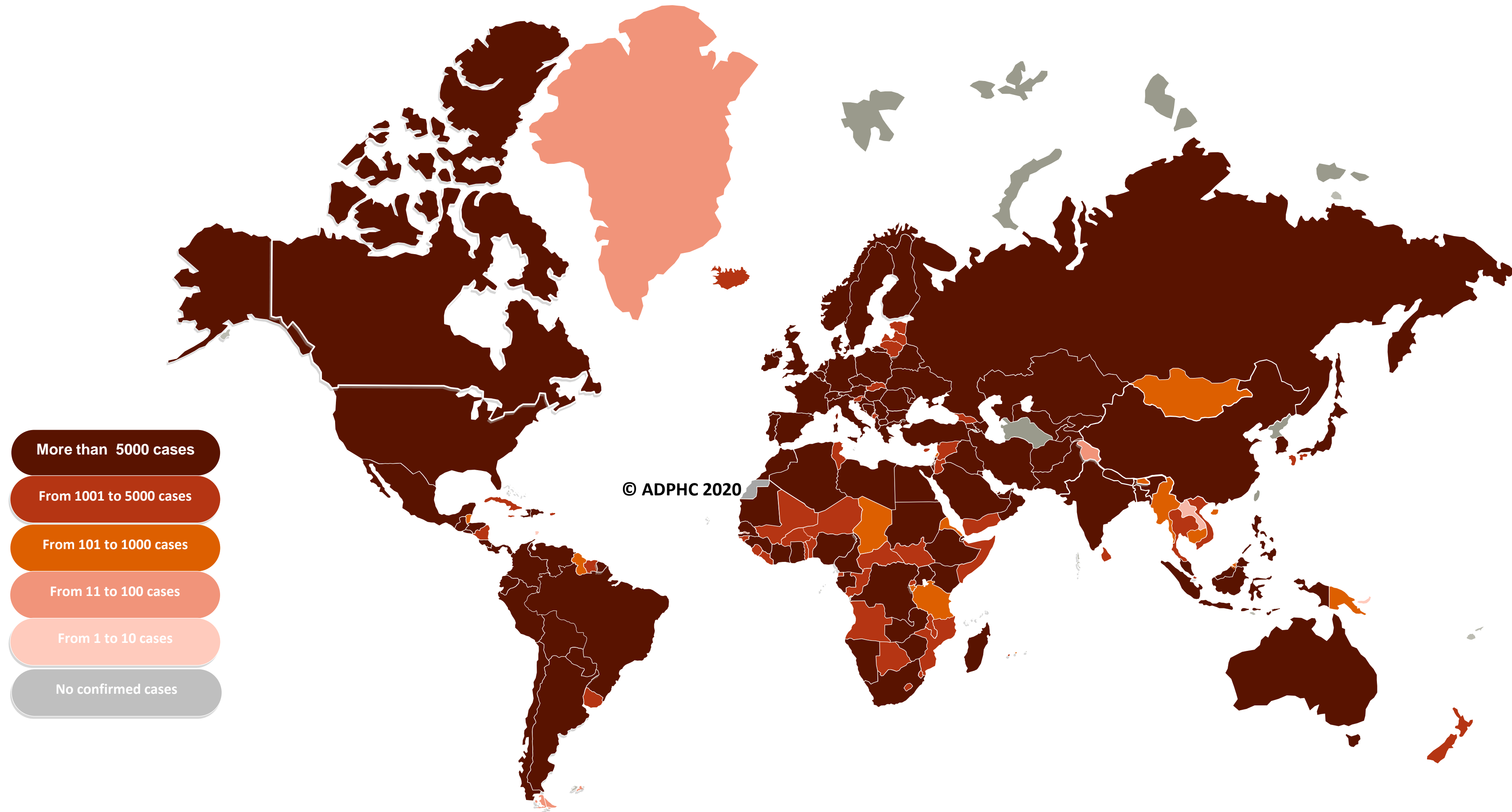
**Figure 6: COVID-19 Status in the UAE** (Federal Competitiveness and Statistics Authority Dashboard)



## 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

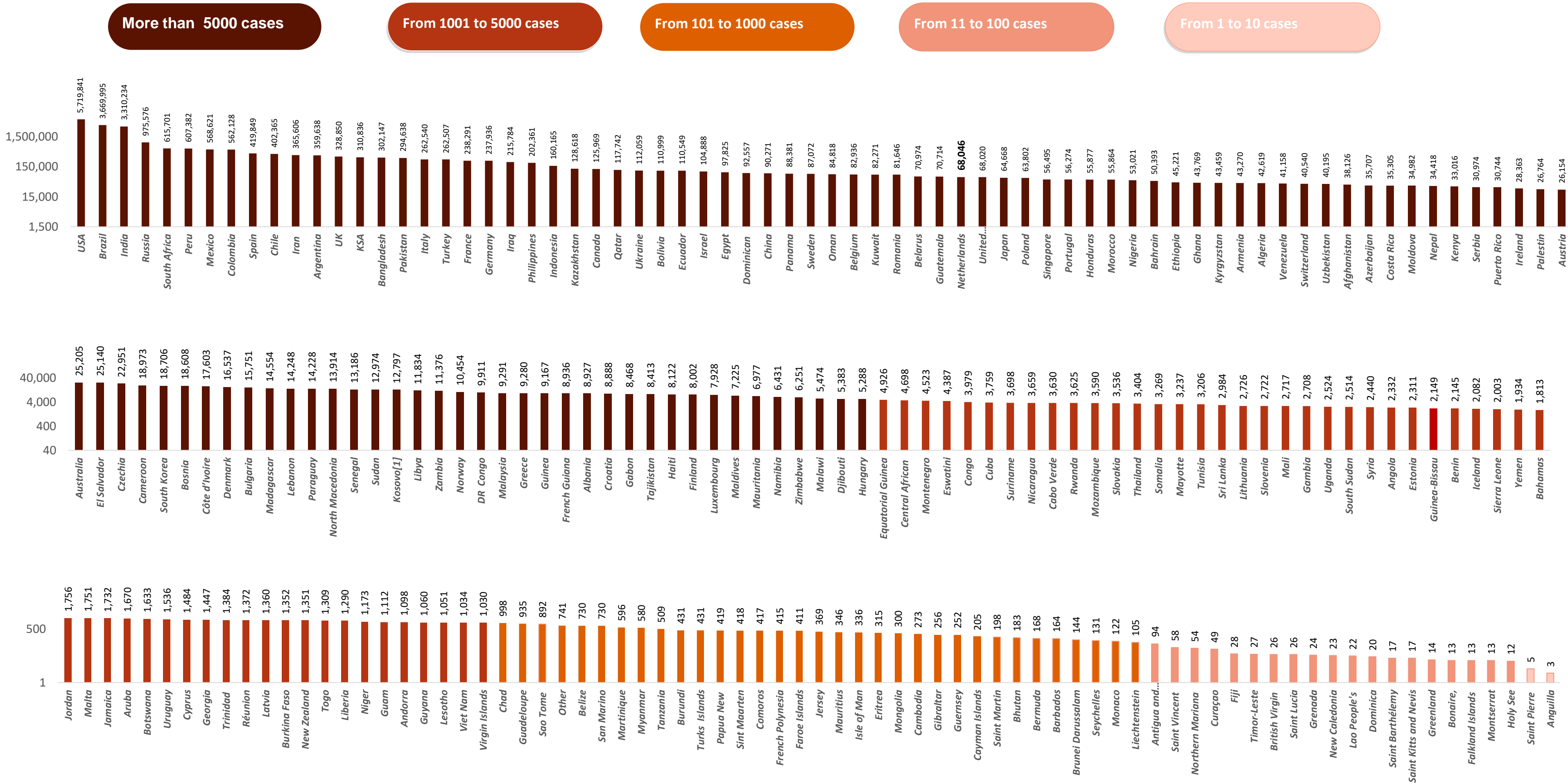
From 101 to 1000 cases

From 11 to 100 cases

From 1 to 10 cases

No confirmed cases

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

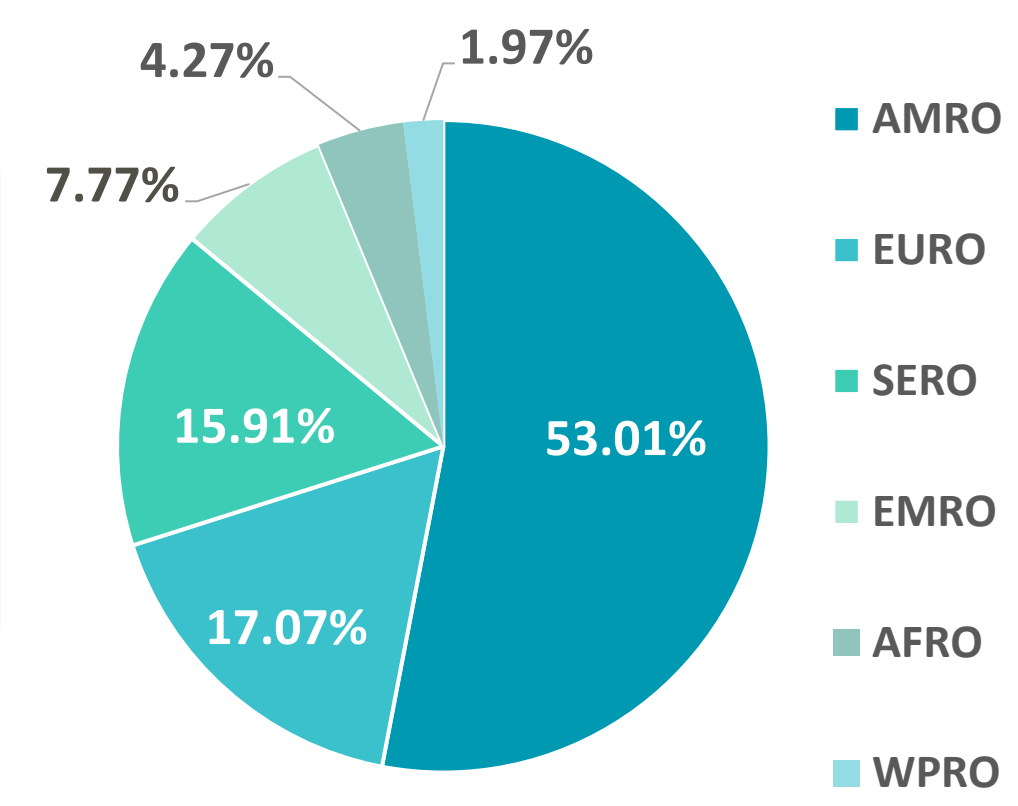
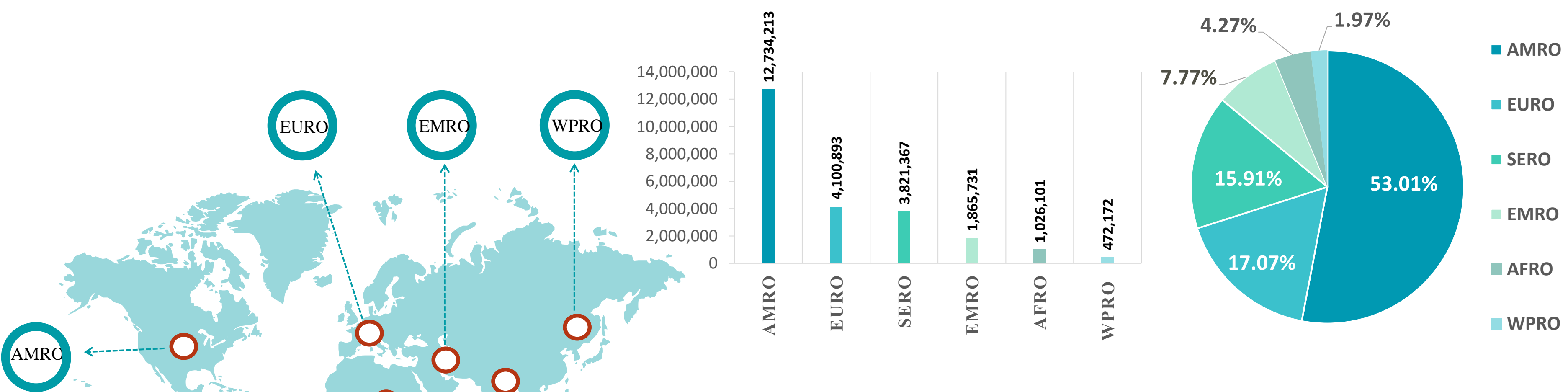


Other\*: includes cases and deaths reported under the international conveyance(Diamond Princess)

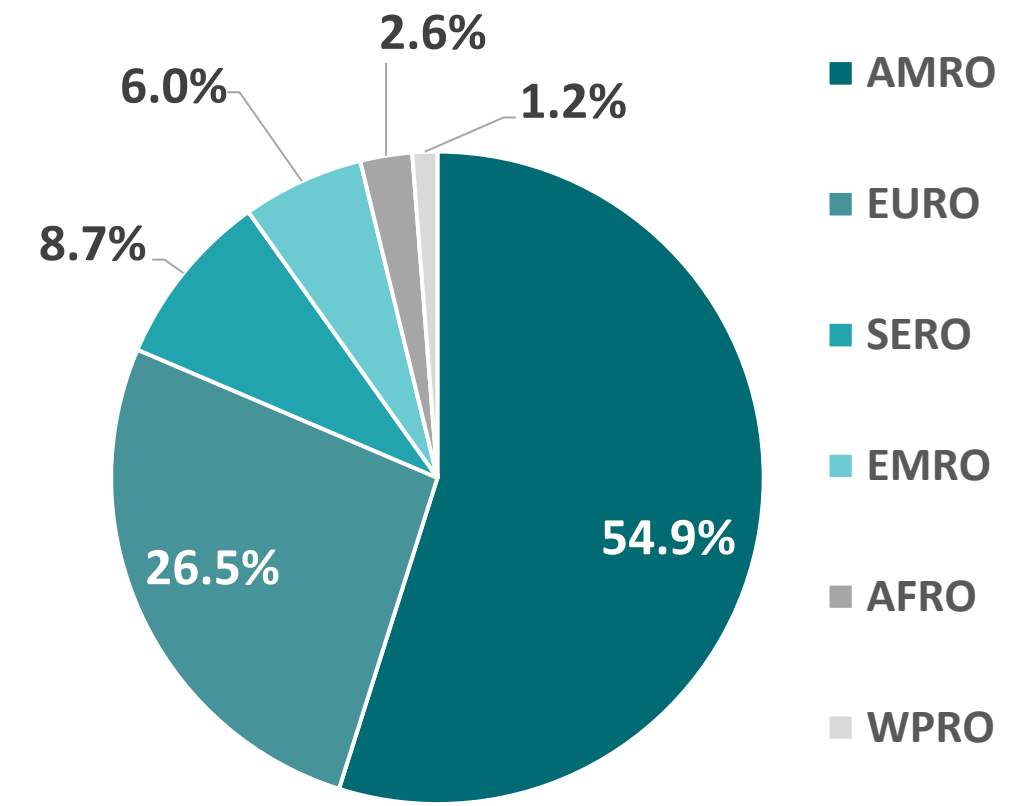
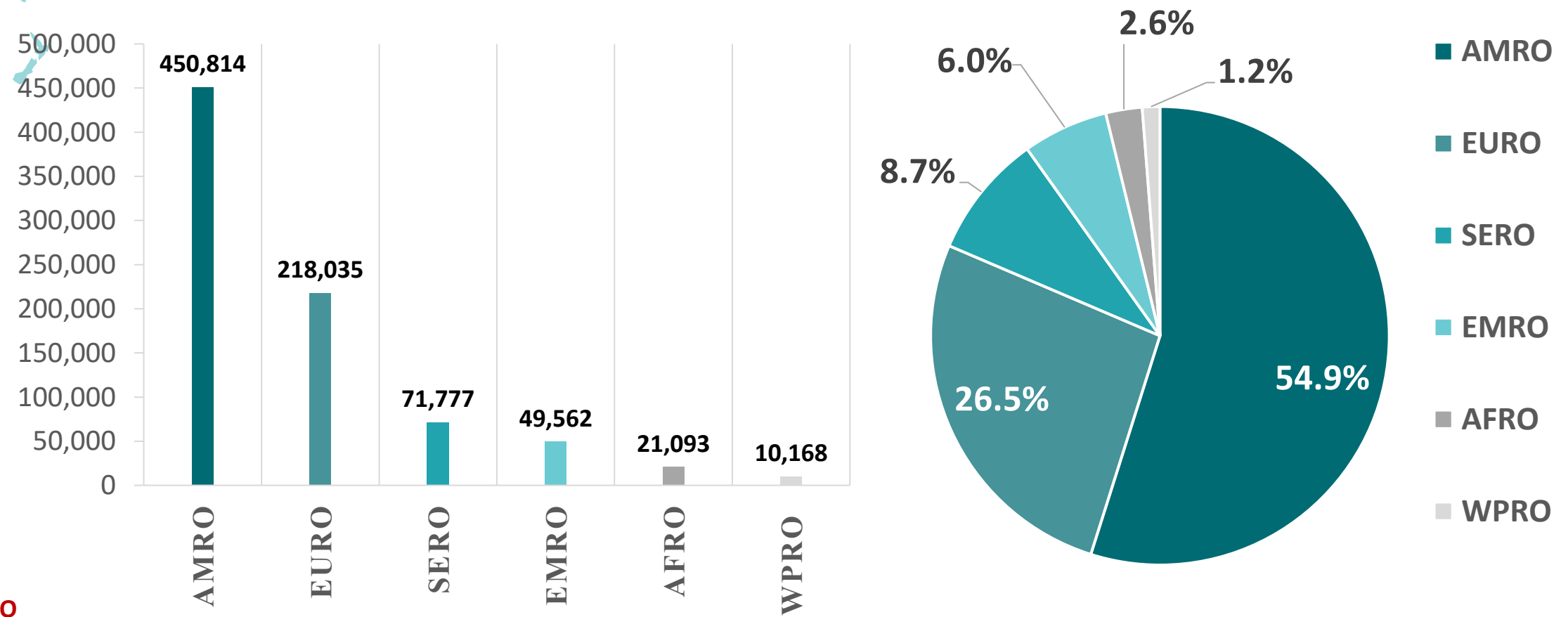


Figure 8: Global Distribution of COVID-19 Cases per Region

## INFECTED

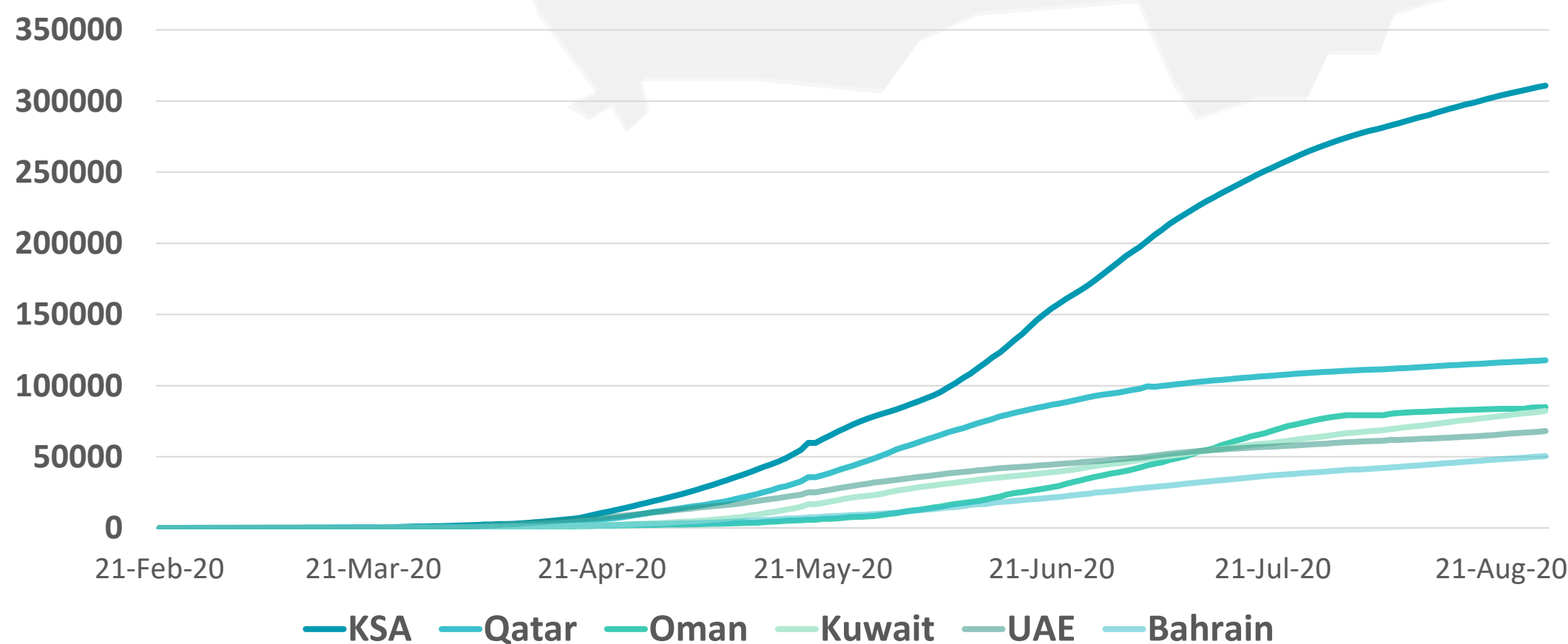
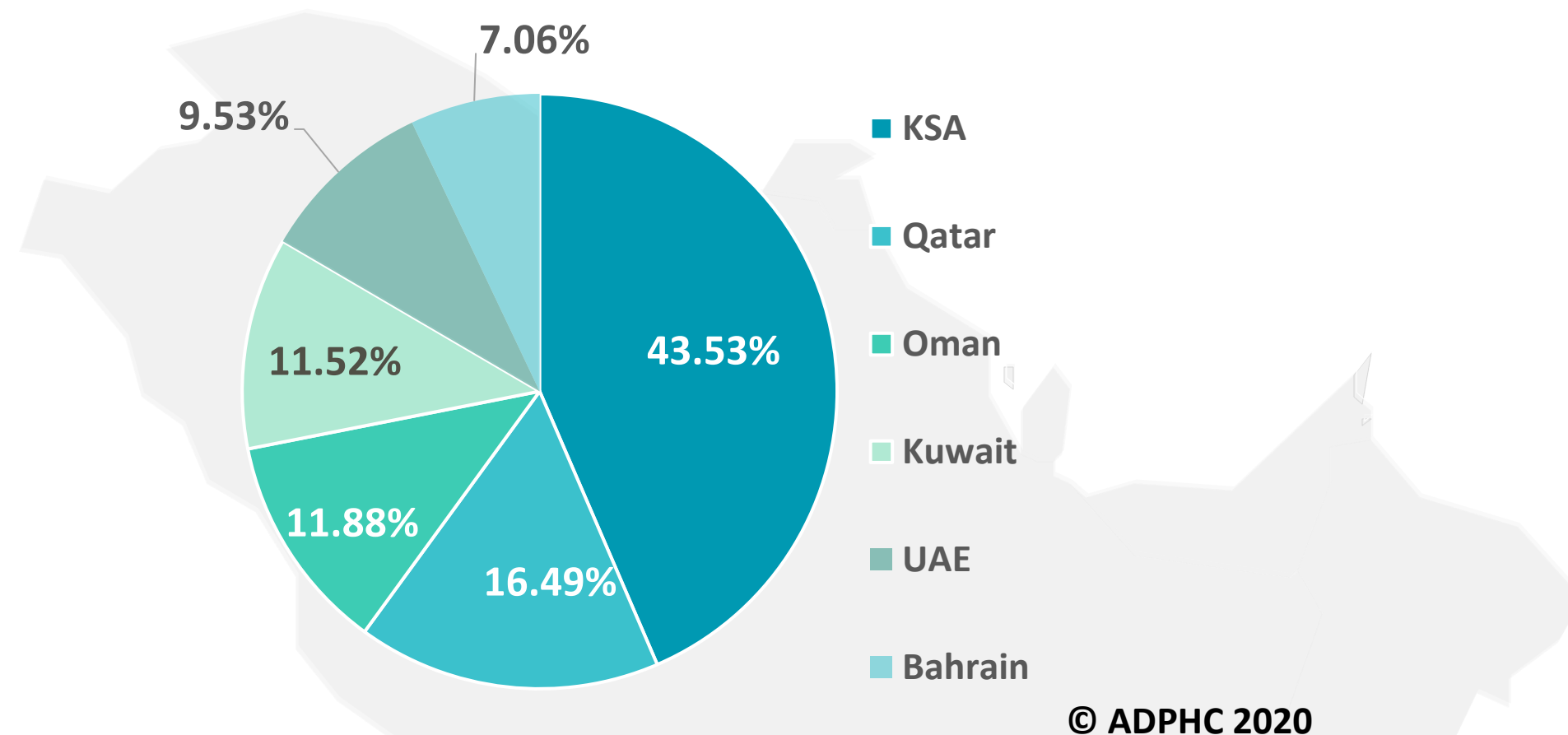


## DEATHS

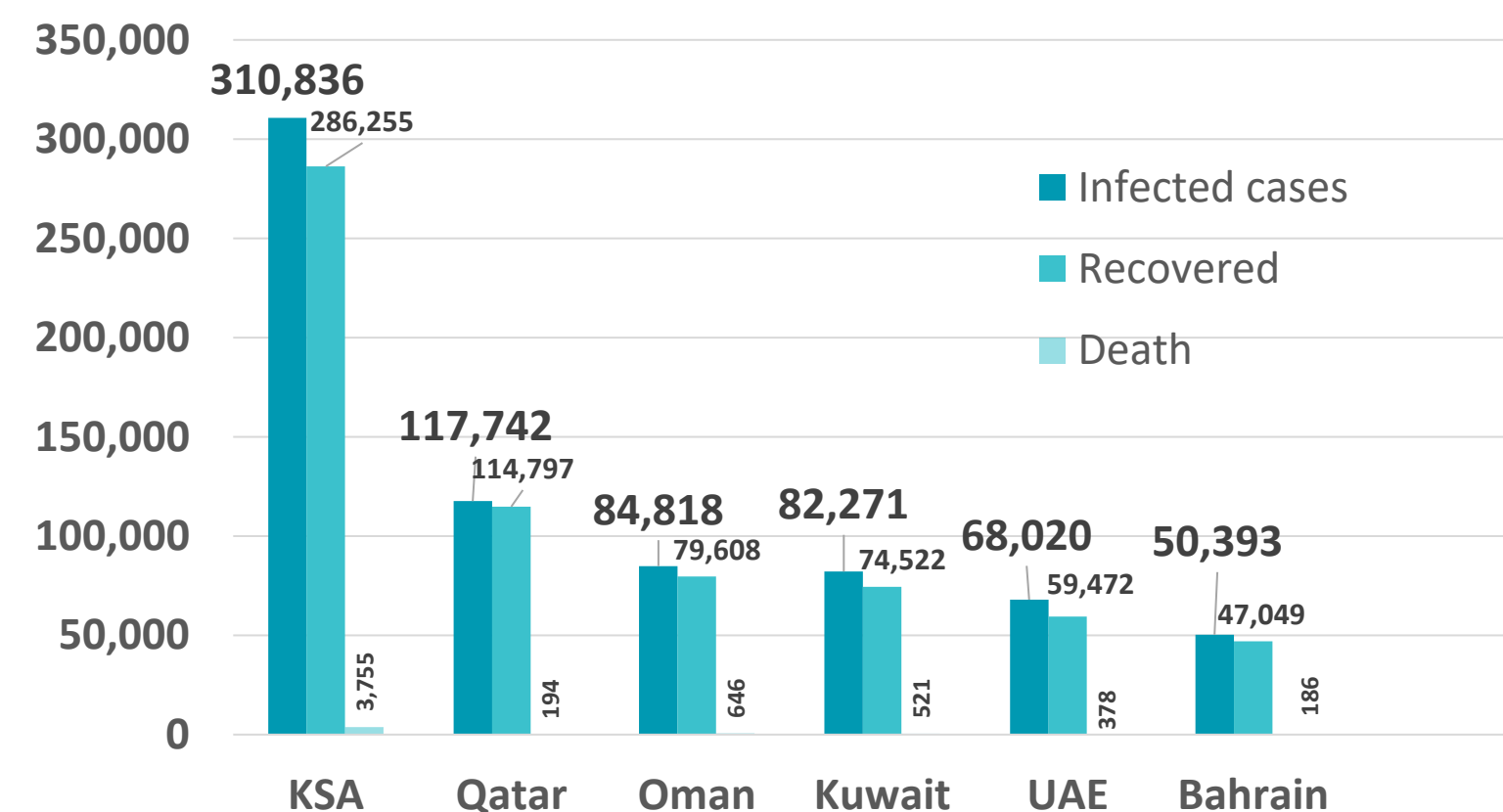


## Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

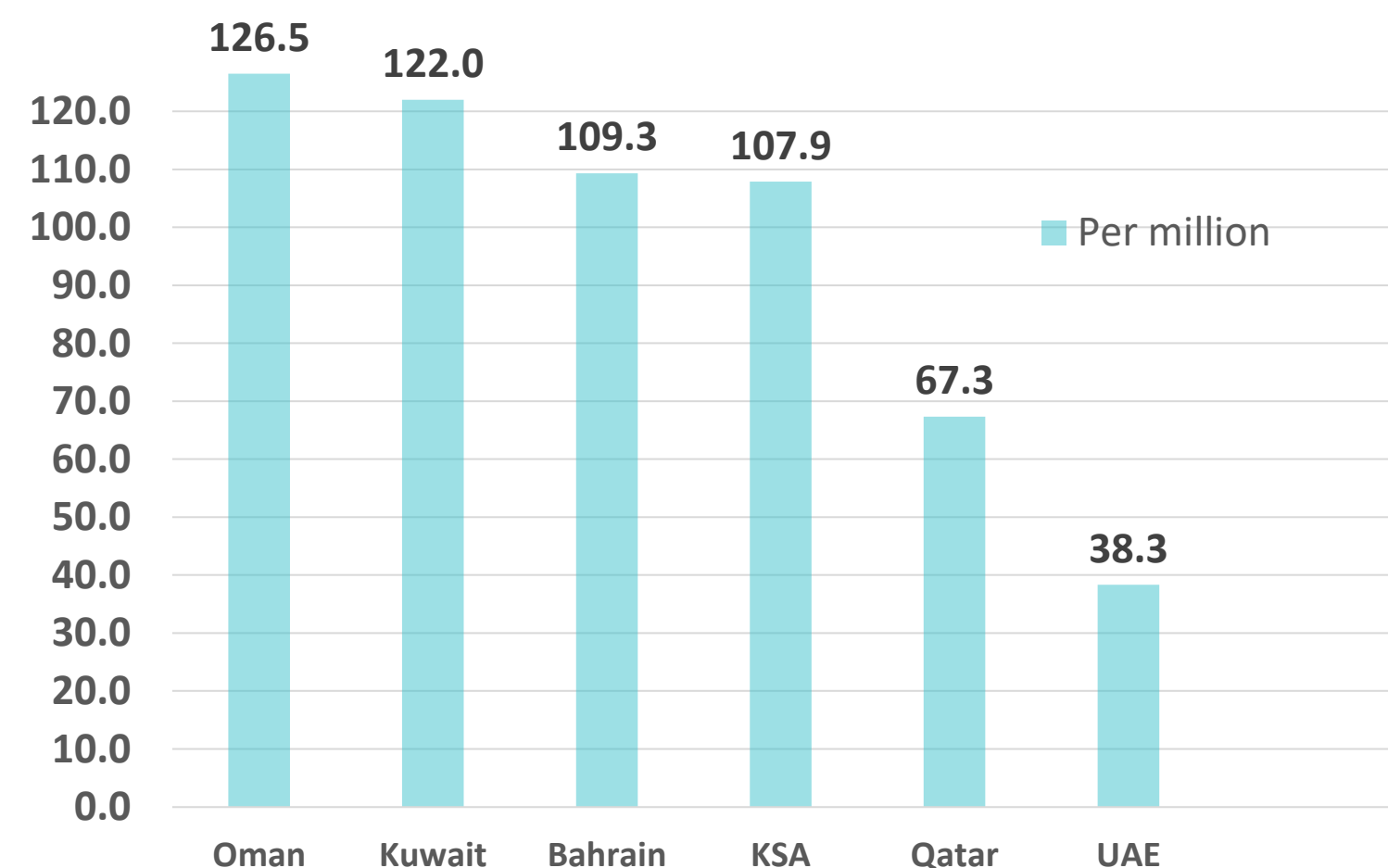
### TOTAL NUMBER OF INFECTED CASES



### TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



### DEATHS PER MILLION



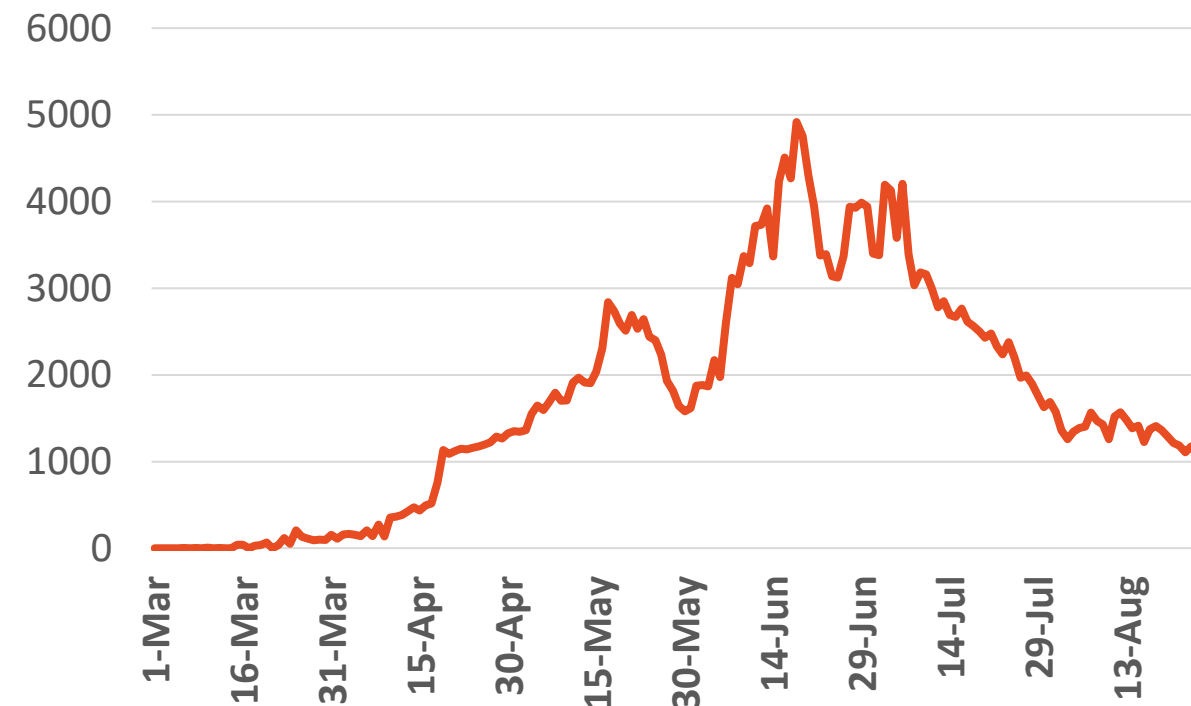
## Figure 10: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries

### UAE



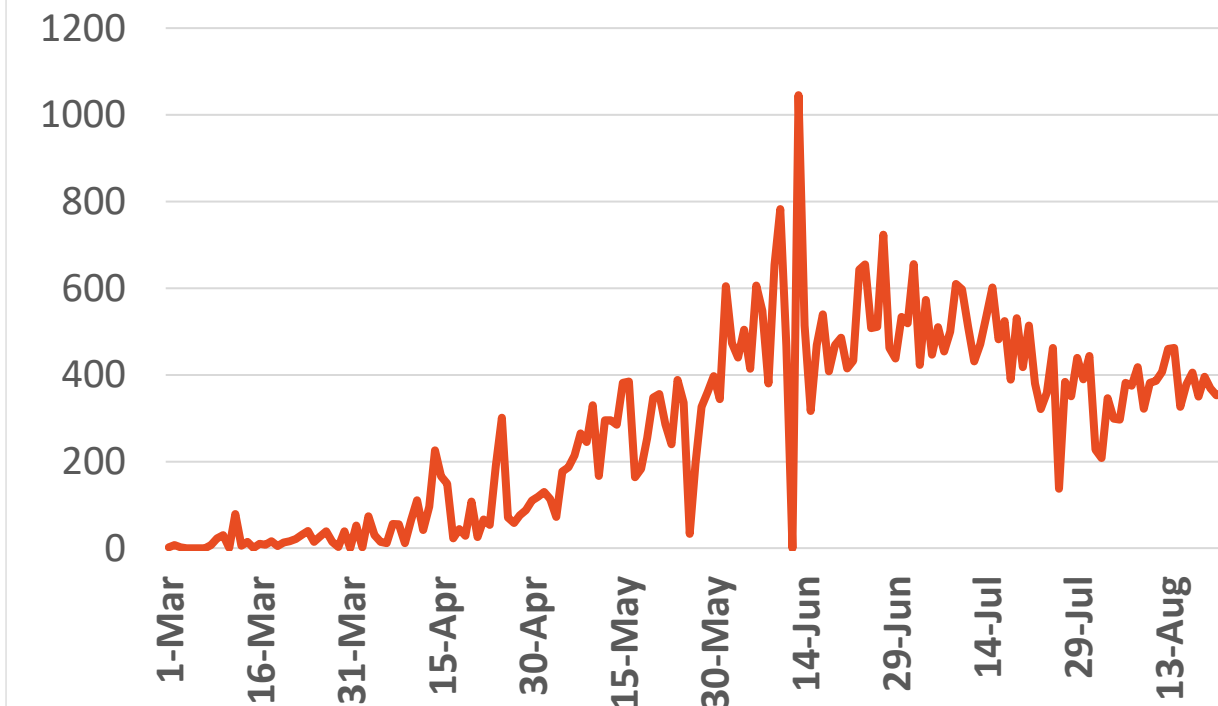
Source : National Emergency Crisis and Disaster Management Authority

### KSA



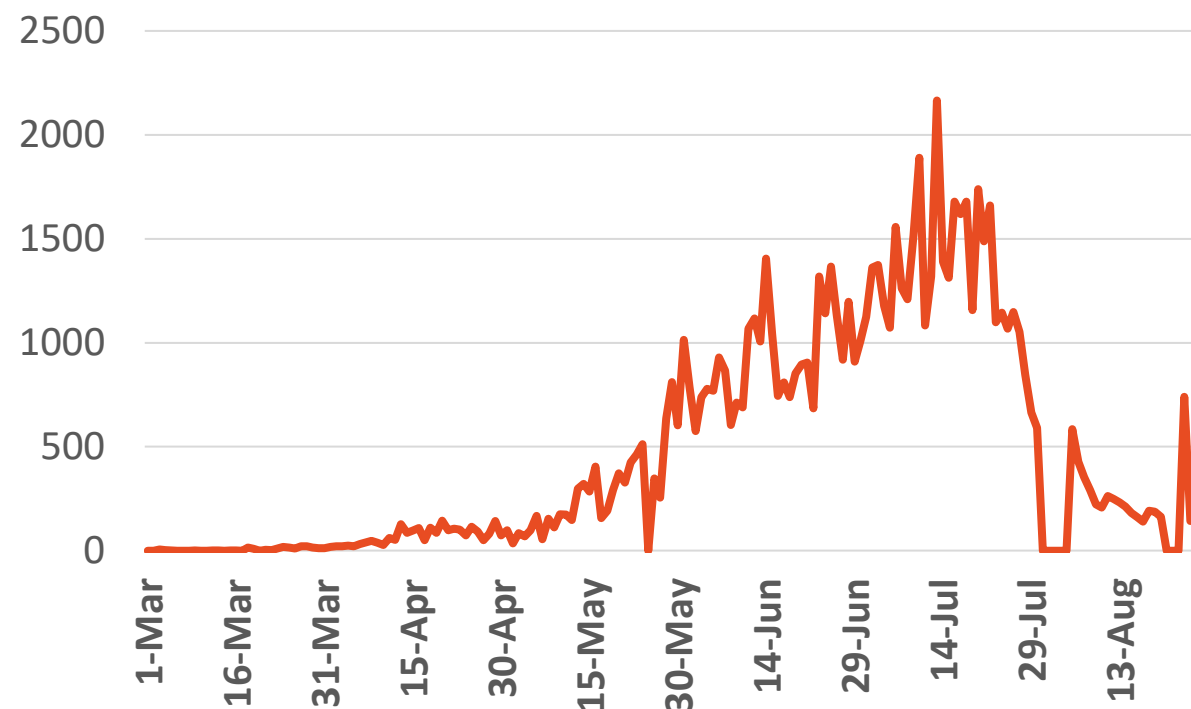
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman

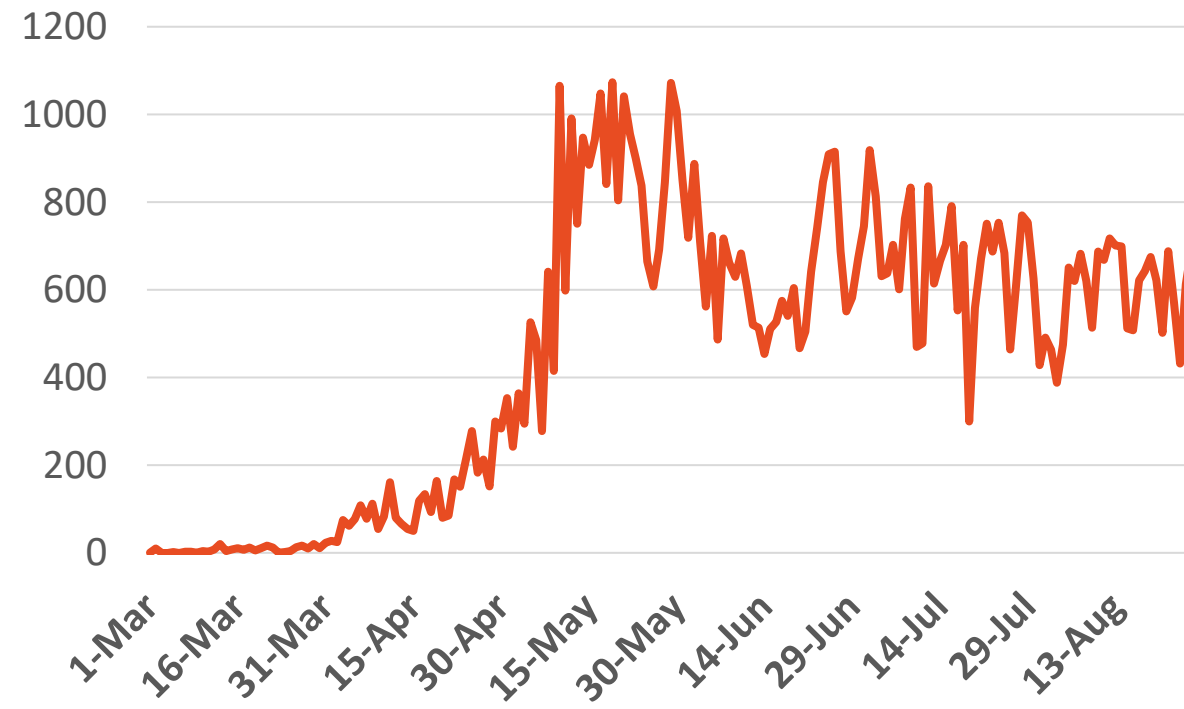


Source :Oman ministry of health

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

### Kuwait

© ADPHC 2020



Source : Kuwait ministry of health

### Qatar



Source : Qatar ministry of health

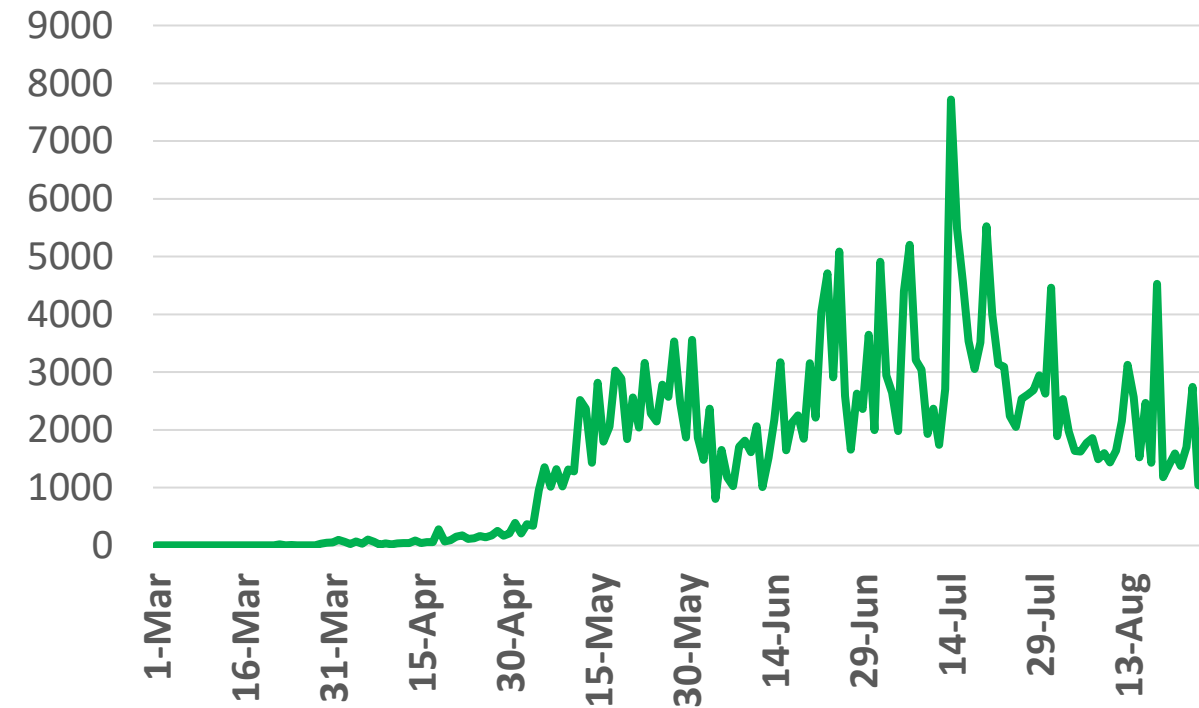
## Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries

### UAE



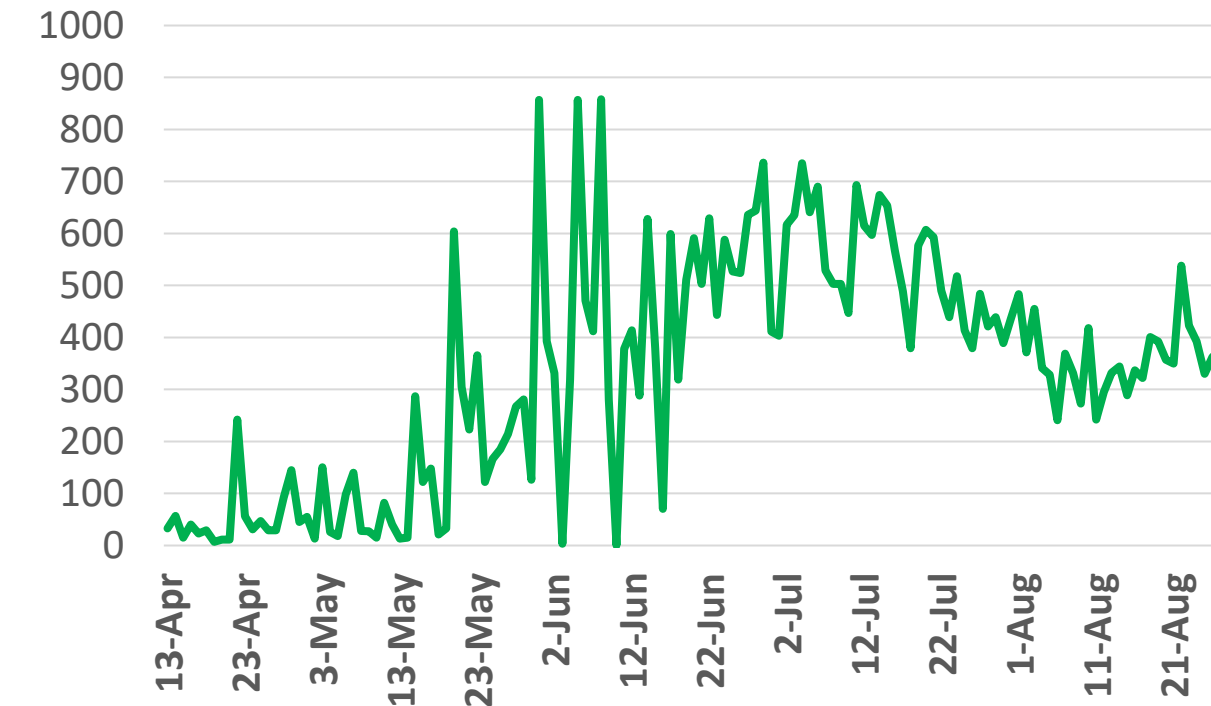
Source : National Emergency Crisis and Disaster Management Authority

### KSA



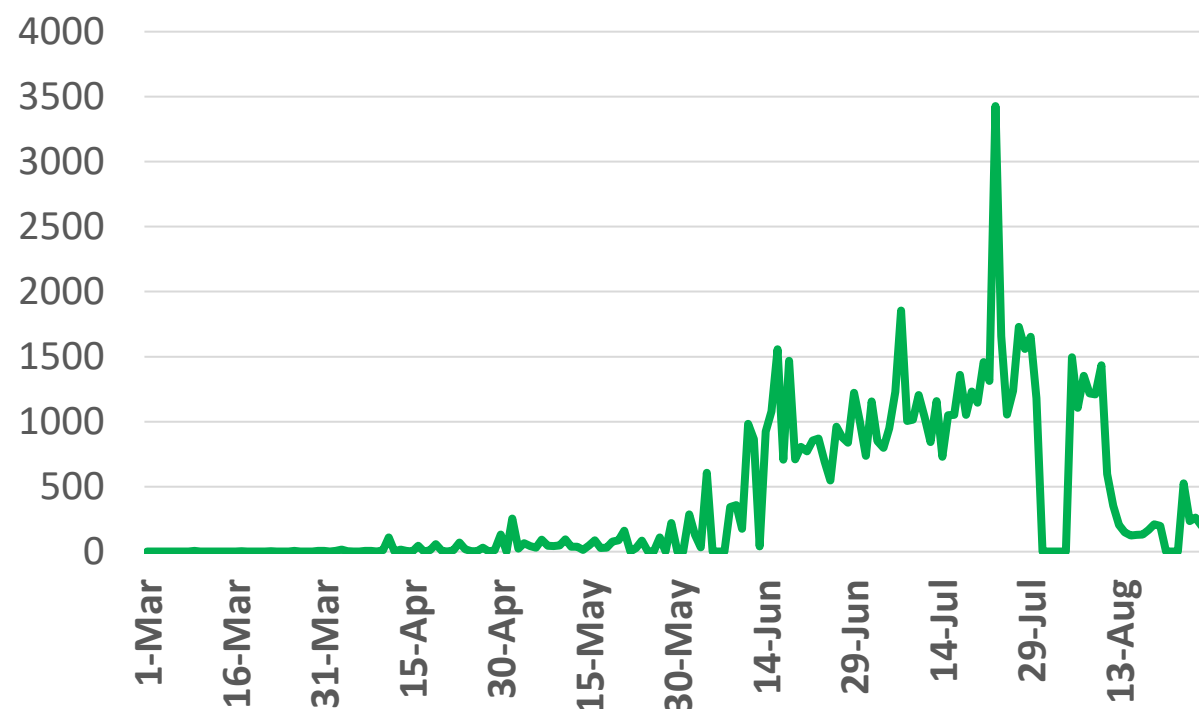
Source : KSA ministry of health

### Bahrain



Source : GCCStat

### Oman



Source : Oman ministry of health

### Kuwait

© ADPHC 2020



Source : Kuwait ministry of health

### Qatar



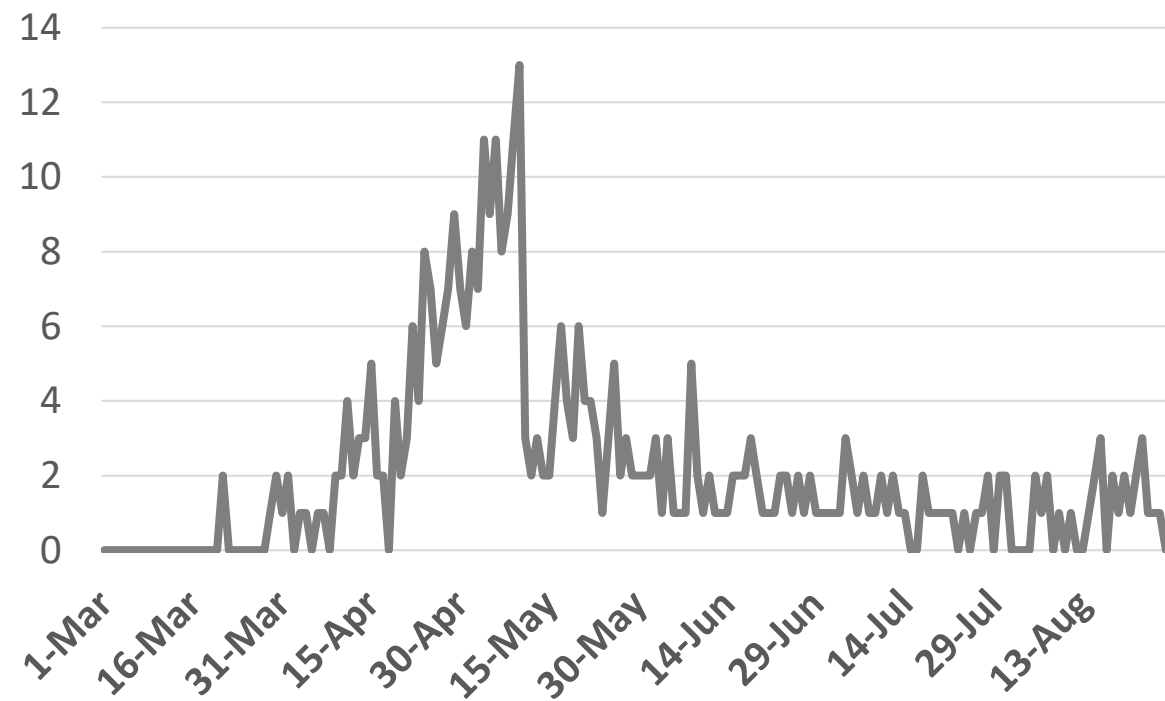
Source : Qatar ministry of health

\*No announced statistic data from 31 July to 4 August & from 21 to 23 August

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

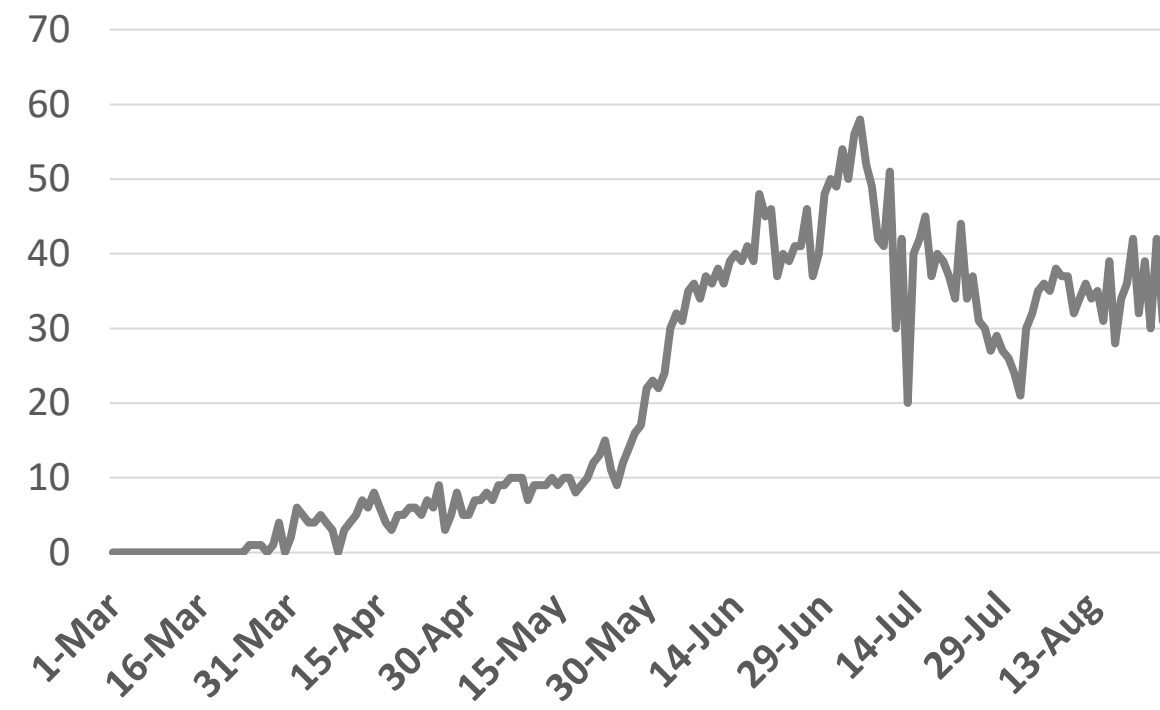
## Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

### UAE



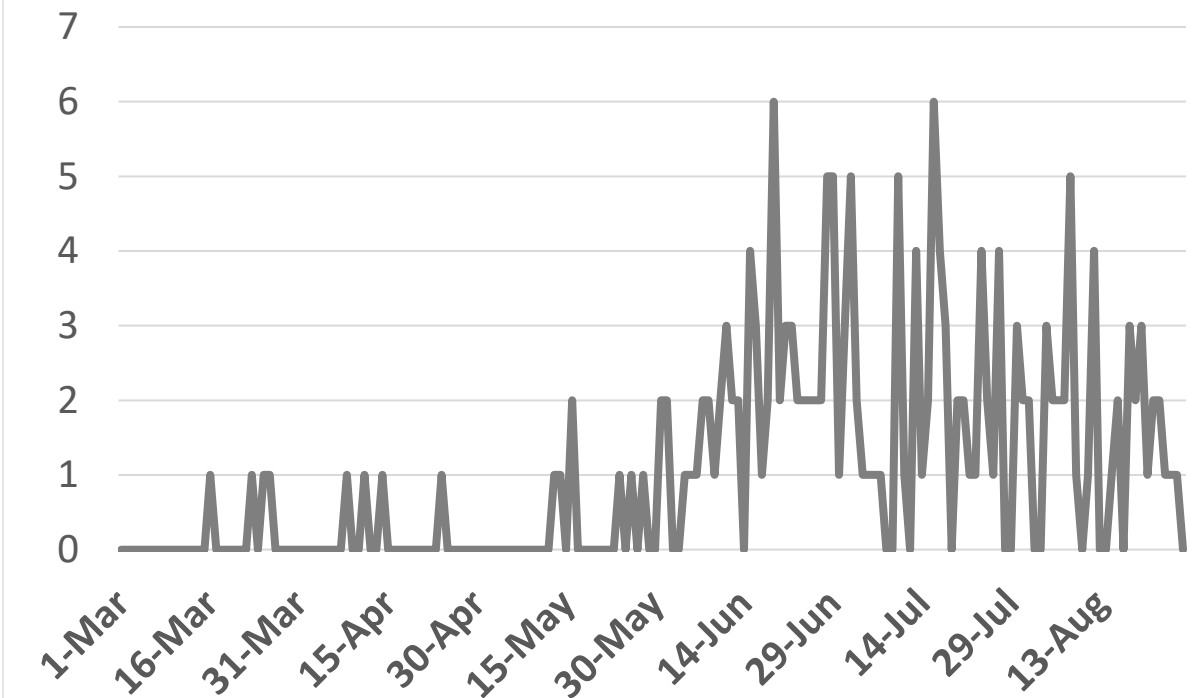
Source : National Emergency Crisis and Disaster Management Authority

### KSA



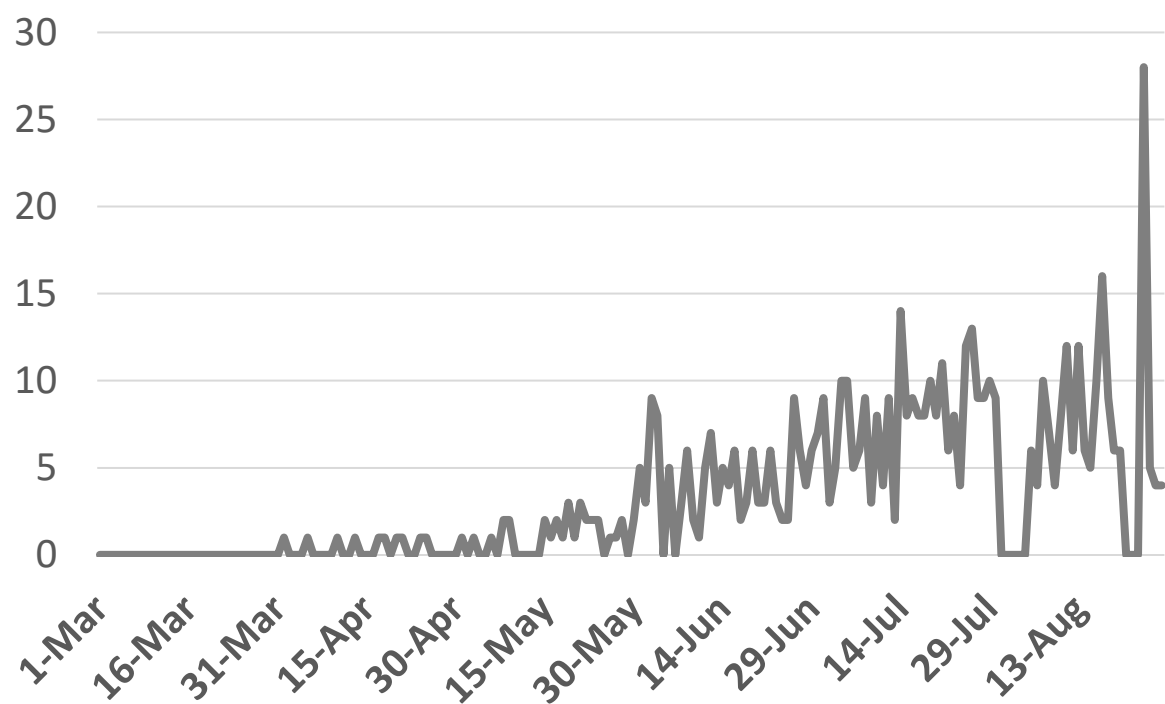
Source : KSA ministry of health

### Bahrain



Source :WHO

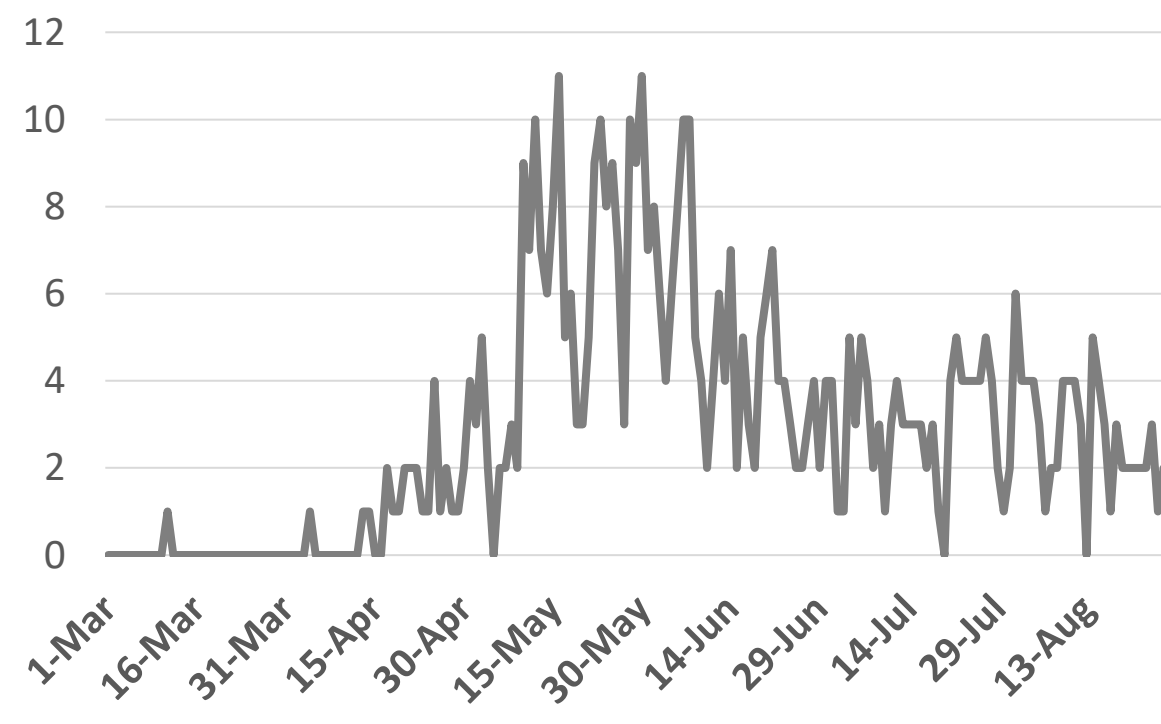
### Oman



Source :Oman ministry of health

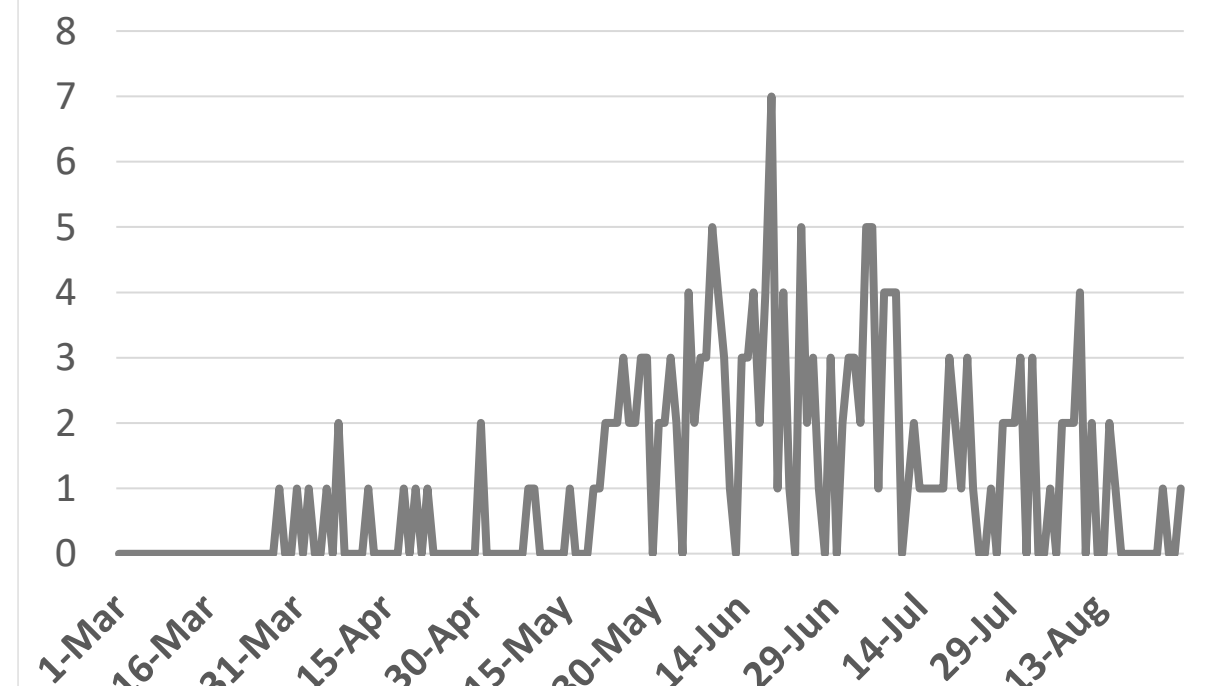
### Kuwait

© ADPHC 2020



Source : Kuwait ministry of health

### Qatar



Source : Qatar ministry of health

\*No announced statistic data from 31 July to 4 August & from 21 to 23 August

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



## Article 1

# COVID-19 Related Stroke in Young Individuals

Published

01 September 2020 [THE LANCET](#)

- This article illustrates that 7.6 fold increase in thrombotic vascular events in young people including stroke with COVID-19 due to the proposed mechanisms for these cerebrovascular events includes a hypercoagulable state from systemic inflammation and cytokine storm, post-infectious immune responses, and direct viral-induced blood vessel inflammation.
- Many reports have documented in Multiple regions with high COVID-19 prevalence have reported stable or increased incidence of large vessel stroke, for example, there were five patients younger than 50 years who tested positive for SARS-CoV-2, some with no vascular risk factors were admitted with large vessel stroke to hospitals during a 2-week period.
- Additional supporting data that the mean patient's age decreased in several thrombectomy ( a procedure removing a blood clot from blood vessels) case series of COVID-19 which was between 52 to 63 years comparing to patients with stroke who tested negative for SARS-CoV-2 and had a mean age of 70 years.
- The report believes that healthy, young patients who present with stroke, the diagnosis of COVID-19 should be thoroughly investigated. Conversely, in patients with mild COVID-19 respiratory symptoms, a low threshold for investigation for stroke should be maintained if they present with new neurological symptoms.





## Article 2

# Comparison of Molecular Testing Strategies for COVID-19

## Control: A Mathematical Modelling Study

Published

18 August 2020 [THE LANCET](#)

**This study compared the impact of different testing strategies for COVID-19.**

### Background

- The increased testing in response to the COVID-19 is proposed by WHO with countries employing different testing and isolation strategies.
- However, the effectiveness of these strategies for SARS-CoV2 transmission is unknown.

### Methodology

- This is a mathematical modelling study describing infectiousness over time.
- The impact of self-isolation following either a positive test result or symptom onset and the impact of quarantine of contacts of laboratory-confirmed cases was evaluated.
- The expected effectiveness of different testing strategies, defined as the percentage reduction in effective reproduction number (R), was calculated.

### Results

- PCR testing of symptomatic individuals to identify SARS-CoV2 infection would reduce the number of individuals needing to self-isolate.
- If all individuals with symptoms compatible with COVID-19 self-isolated, no further transmission from self-isolating individuals, would result in a reduction in R of 47%.

- Regular PCR testing of high-risk groups such as health-care or social-care workers for SARS-CoV-2 infection, irrespective of symptoms, could further reduce transmission if asymptomatic or pre-symptomatic infections are identified and isolated.
- Frequency of testing, timeliness of results, and sensitivity of the test as a function of time since infection are important for PCR testing effectiveness.
- Weekly screening of health-care workers and a 24 h delay from testing to self-isolation would reduce their contribution to SARS-CoV2 transmission (R) by 23% on top of any reductions already achieved as a result of self-isolation following symptoms.
- If the coverage of test and trace is 80%, and it takes 24 h from sample collection to quarantine of contacts, then reduction in the number of secondary infections from contacts of the index case is 26%.
- Combined impact of quarantine of contacts and self-isolation of symptomatic individuals is 61% reduction in R.
- To avoid quarantine of large numbers of individuals when incidence of infection is high, testing of contacts could be done, and individuals who test positive put into isolation.





## Article 2

### Continued

- Antibody tests need to have high specificity to avoid false-positive results, thus undermining the value of an antibody-based immunity passport.
- Specificity of antibody testing is around 90% or lower for rapid diagnostic tests but higher (95–99%) for laboratory-based ELISA and chemiluminescent assays.

### Public Health Message

- Testing can play an important role in the prevention of SARS-CoV-2 transmission, in addition to its established use for pandemic surveillance and confirmation of a COVID-19 diagnosis.
- Optimal strategies should include regular screening of high-risk groups such as health-care and social-care workers.
- Test and trace require high coverage (proportion of cases tested and contacts successfully traced and quarantined) and rapid testing and contact tracing to be effective.
- Testing alone is unlikely to bring R below 1 at current levels of immunity and will need to be complemented by other interventions such as physical distancing.

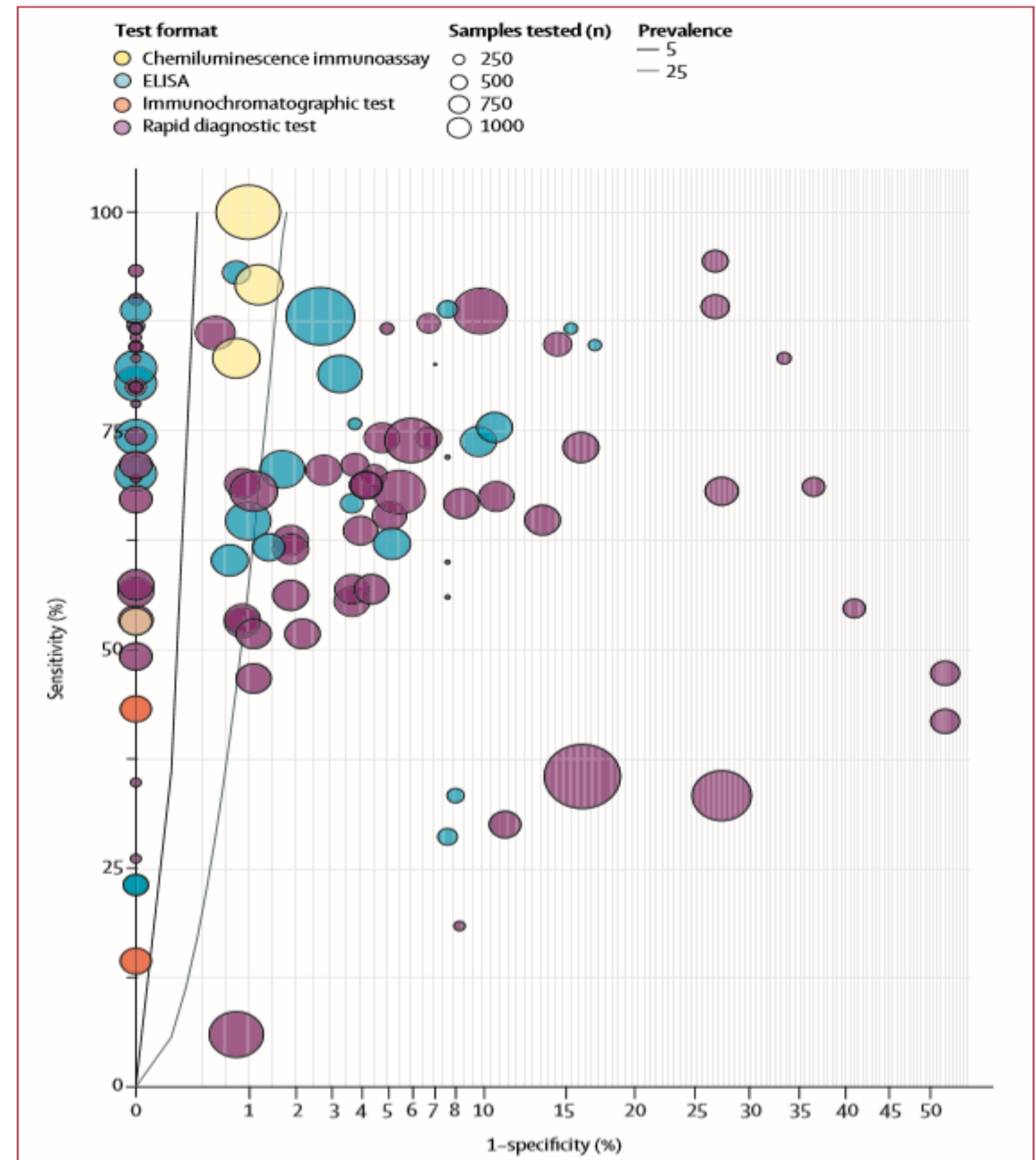


Figure 3: Sensitivity and specificity of currently available antibody tests





## Article 3

Published

11 August 2020 [MedRxiv](#)

# Janus Kinase-Inhibitor and Type I Interferon Ability to Produce Favorable Clinical Outcomes in COVID-19 Patients: A Systematic Review and Meta-Analysis

**JAK inhibitors (Jakinibs) and Type I interferons (IFNs) are found to be effective in treating patients with severe SARS-CoV-2 infections. This review aimed to evaluate the potential benefits of the role of Jakinibs and IFNs antivirals in hospitalized COVID-19 patients at different stages of the disease.**

### Methodology

- Fifteen studies that met the inclusion criteria were systemically reviewed and analyzed.
- Five studies investigated the effects of JAK inhibition in a controlled setting, and ten studies investigated the effects of Type I interferons.
- Outcomes were observed in terms of mortality, mechanical ventilation use, ICU admission, hospital discharge, and Acute respiratory distress syndrome incidence.

### Results

- Jakinibs demonstrated conflicting results and outcomes.
- Decreased mortality and ICU admissions and increased hospital discharge after 14 days upon the use of Jackinibs compared to standard treatment.
- No significant association between Jackinibs and the use of mechanical ventilation or developing ARDS.
- Jackinibs best suited for patients with progressing COVID-19 who have not yet experienced a cytokine storm. These drugs work on reducing JAK signaling and subsequent cytokine release that is related to inflammation responses.

### Type I Interferons

- There is an association between COVID-19 severity & IFNs deficiency.
- The broad-spectrum antiviral effects of IFNs were linked to lower mortality and higher hospital discharge compared to standard treatment.
- No significant association between IFNs and ICU admissions, use of mechanical ventilation or developing ARDS.
- IFNs use at an early stage of COVID-19 (viral replication stage) was found to be effective while its late administration was associated with slower recovery.

### Conclusion

- Additional randomized clinical trials needed to furtherly clarify the efficacy of JAK-inhibitors and Type I interferons in COVID-19.

**Note : This paper have not been peer-reviewed and should not be used for clinical decision making or reporting of research to a lay audience without indicating that it is preliminary research**

# THANK YOU

 ADPHCAE  ADPHC\_AE  ADPHC\_AE  ADPHC.AE  ADPHC-AE  056 2312171