

# SCIENTIFIC RESEARCH MONITORING ON COVID-19

**30 SEPTEMBER 2020**

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# SCIENTIFIC RESEARCH MONITORING ON COVID-19

## (ISSUE 241)

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



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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

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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Ministry of Health contribution

## Epidemiology

**Patient Trajectories Among Persons Hospitalized for COVID-19**

## Diagnosis

**Performance characteristics of five immunoassays for SARS-CoV-2: a head-to-head benchmark comparison**

## Clinical Feature

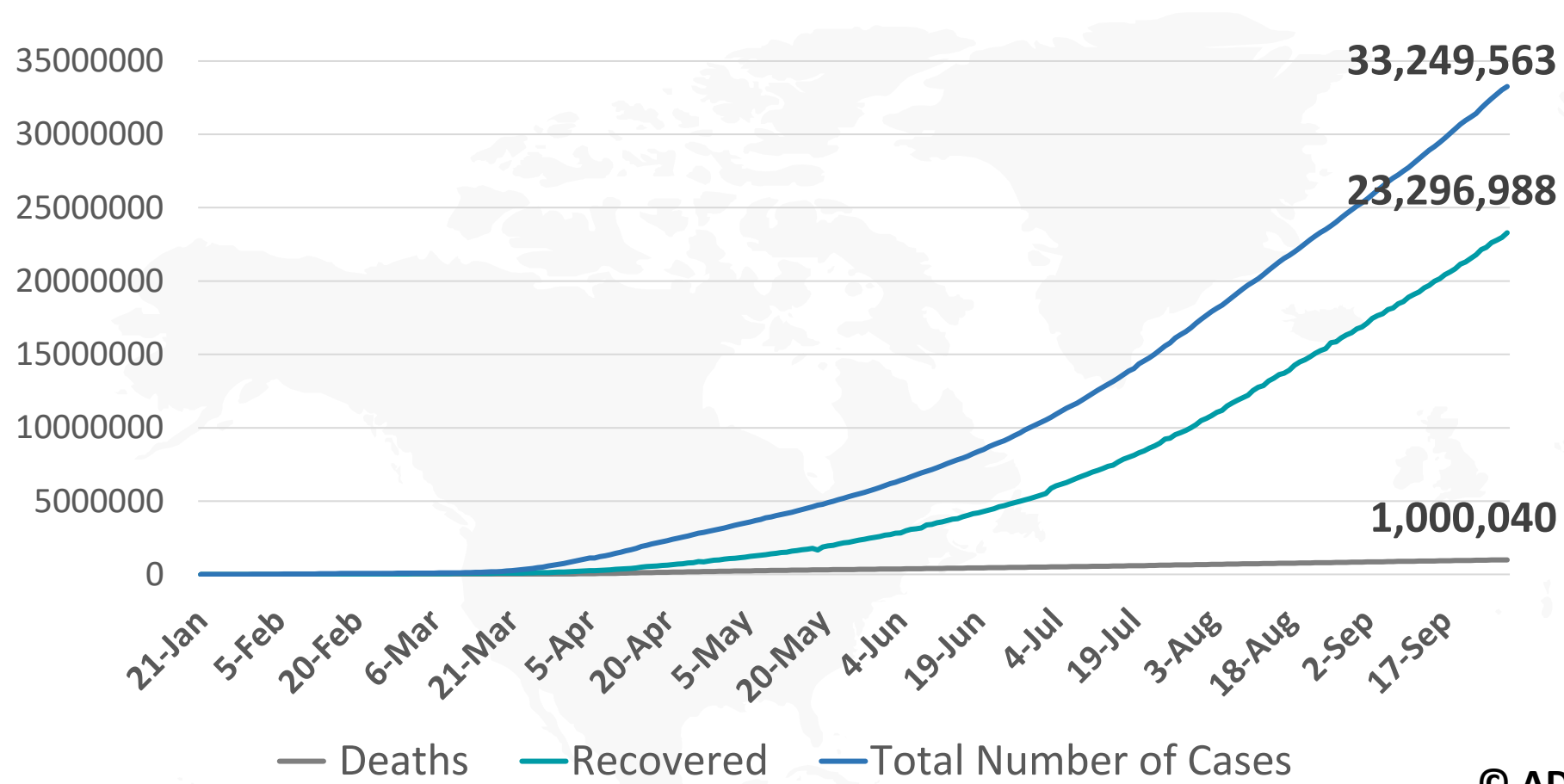
**COVID-19 among people experiencing homelessness in England: a modelling study**

## Clinical Feature

**Viral presence and immunopathology in patients with lethal COVID-19: a prospective autopsy cohort study**

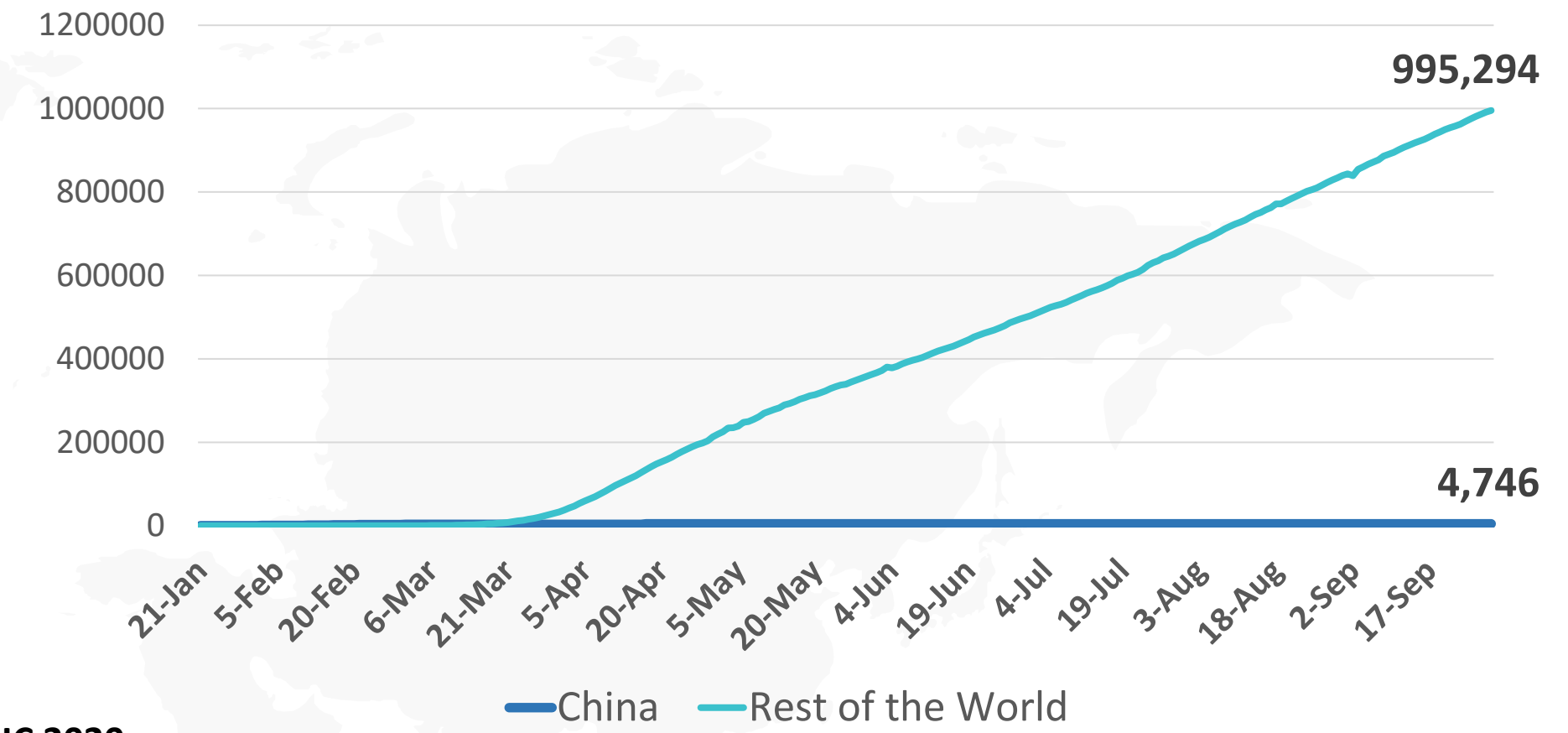


**Figure 1: Total Number of Infected, Recovered, and Death Cases**

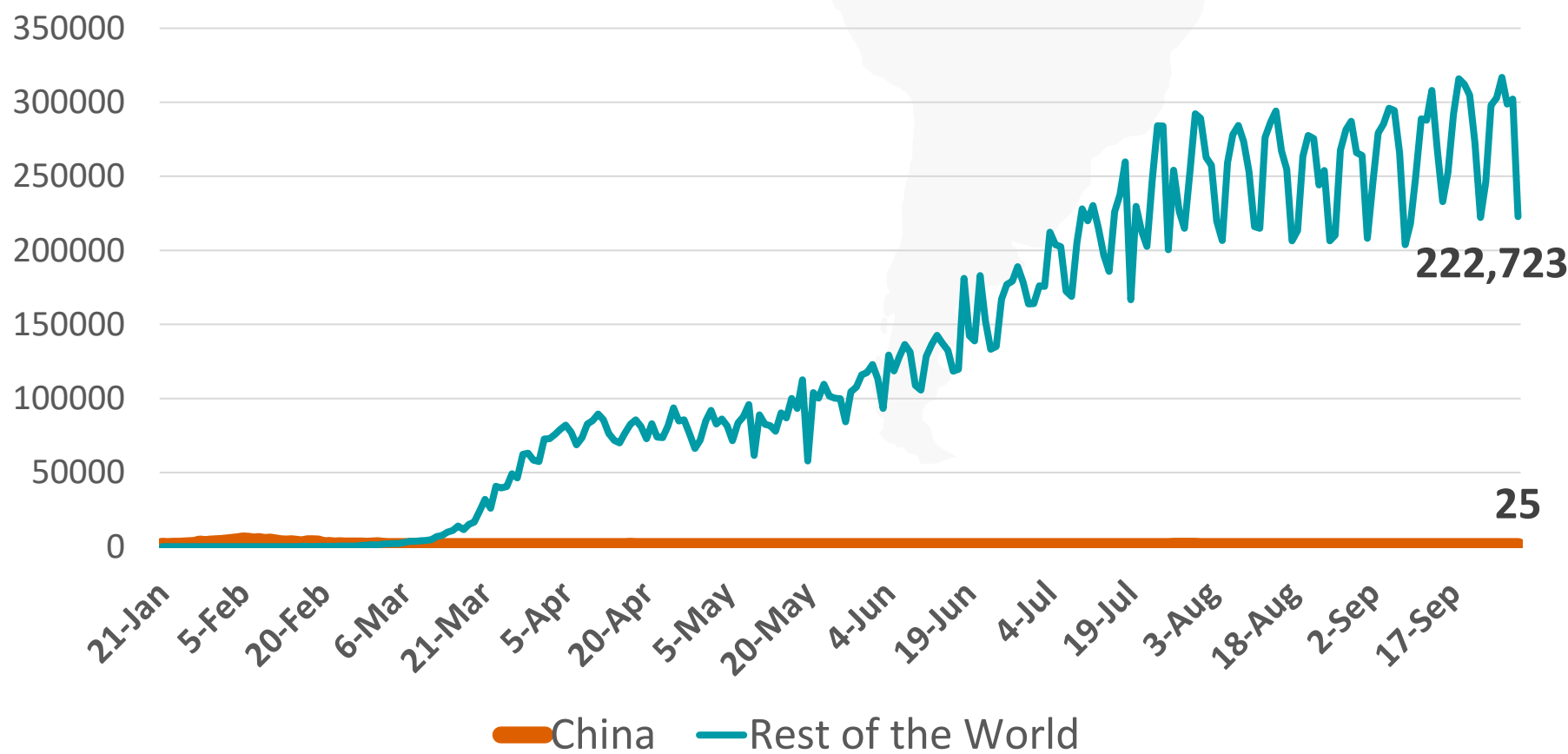


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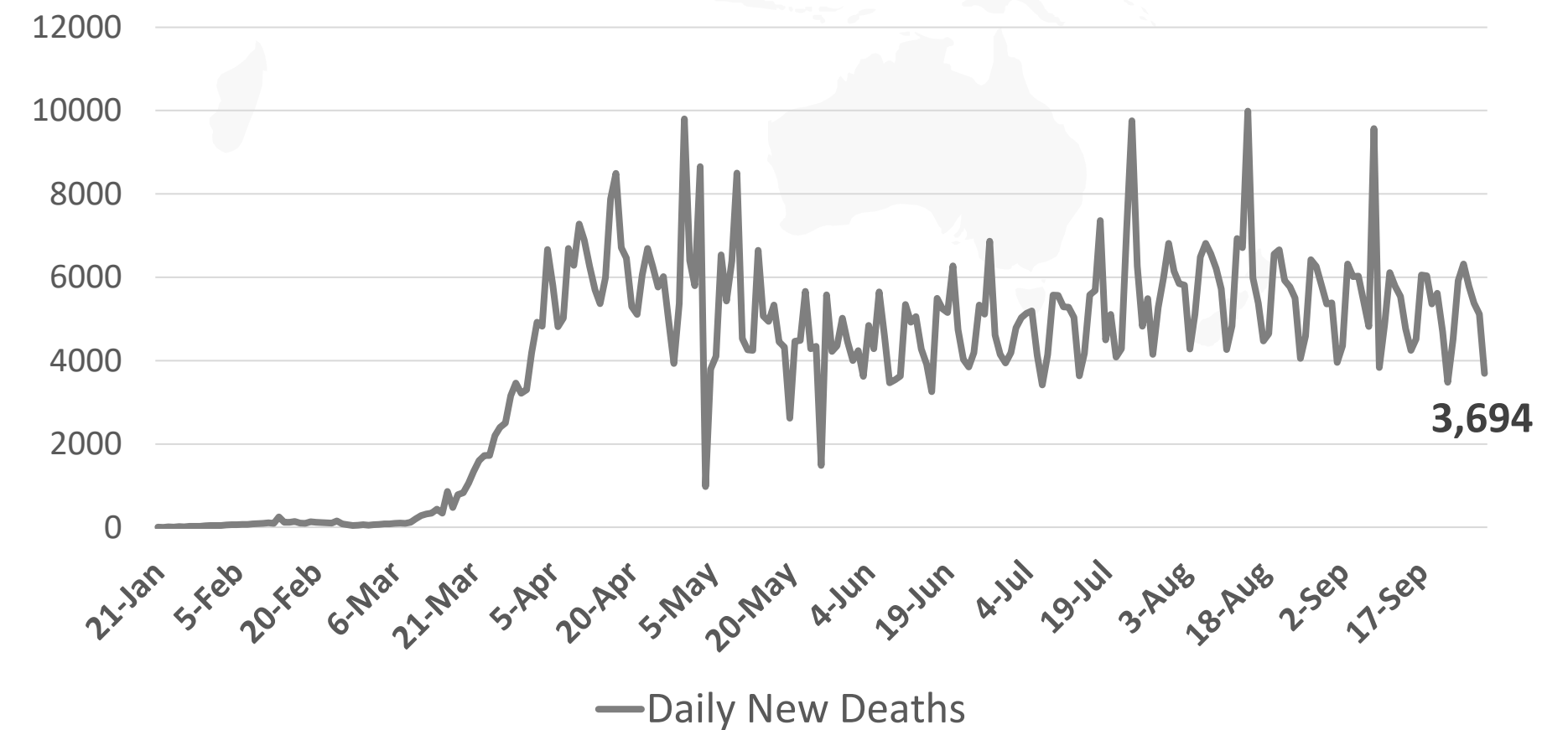
**Figure 3: Total Number of Death Due to COVID-19 (china and result of the world)**



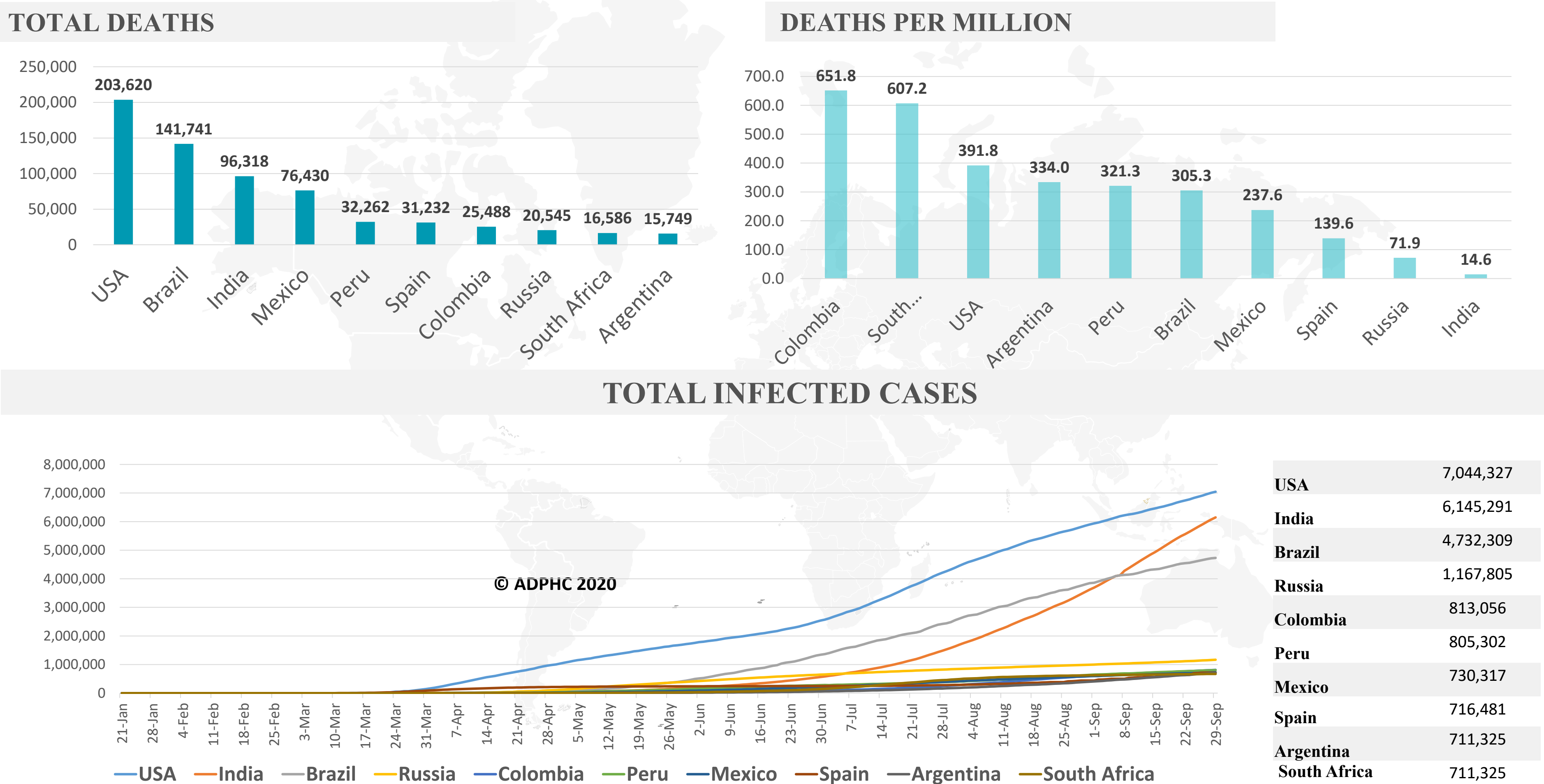
**Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)**



**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



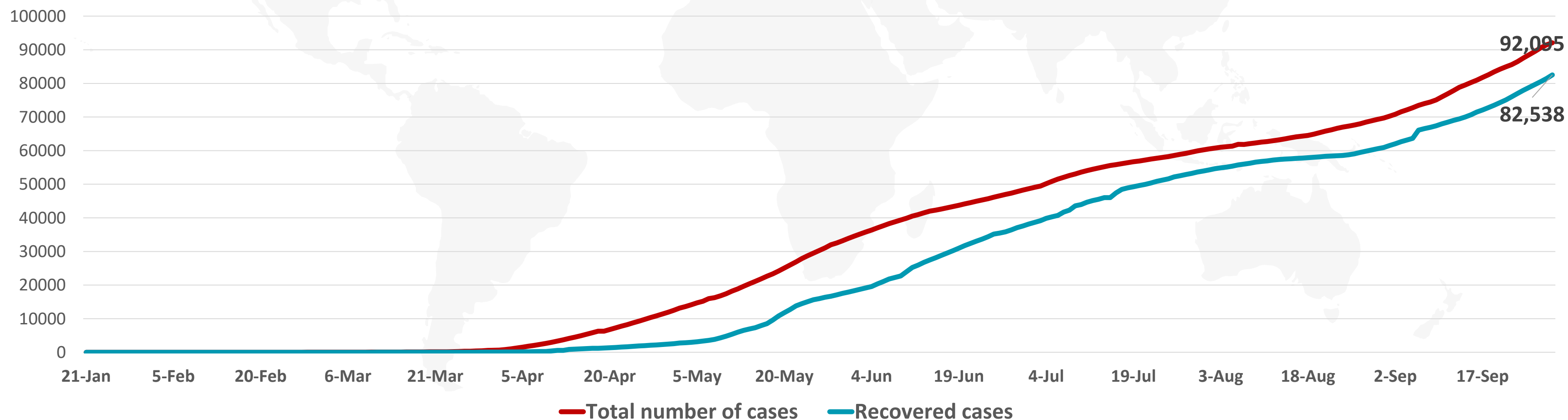
\*No announced data Spain, and WHO don't report data Spain in the last 3 days



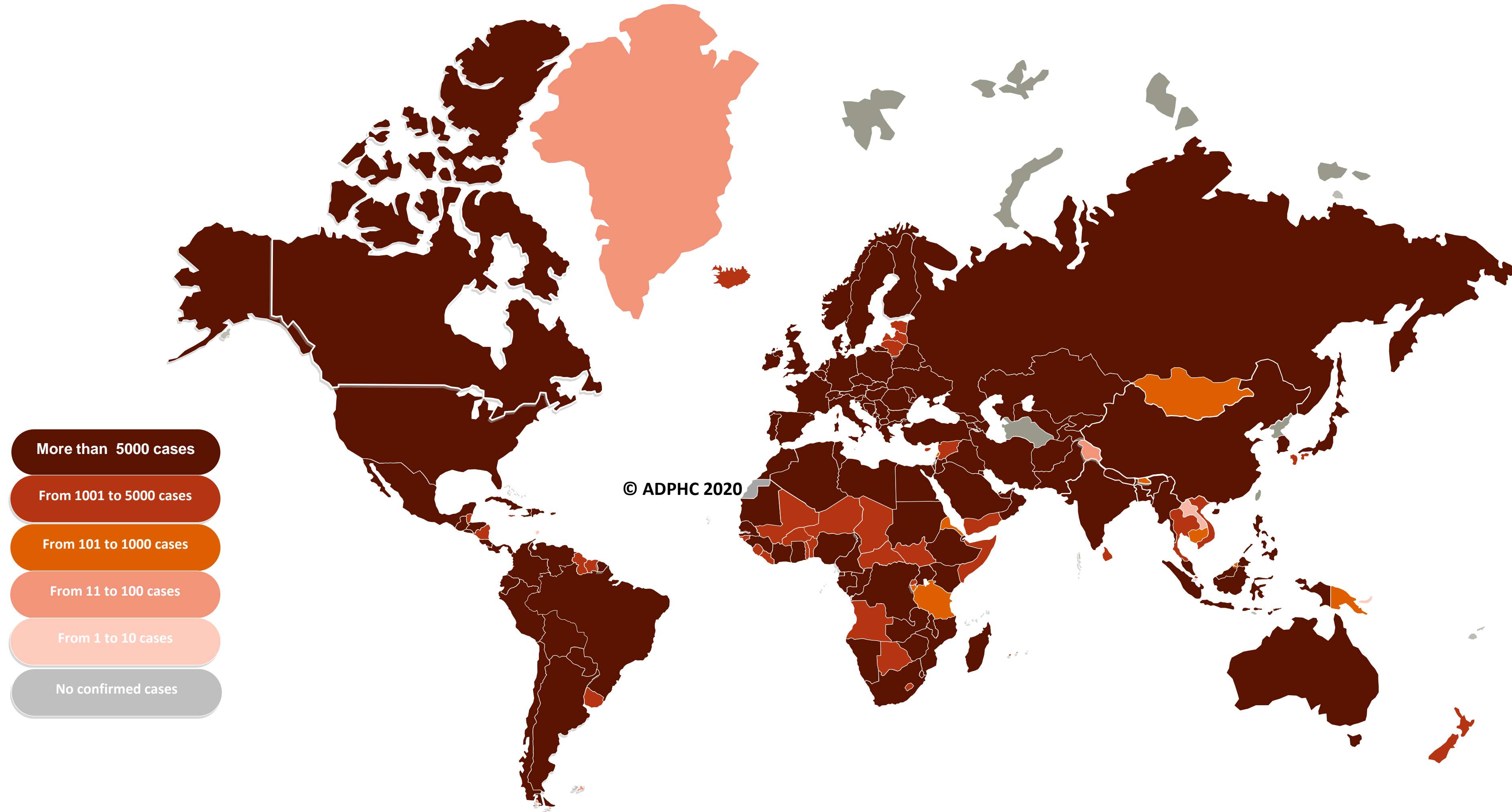
**Figure 6: COVID-19 Status in the UAE** (Federal Competitiveness and Statistics Authority Dashboard)



## 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

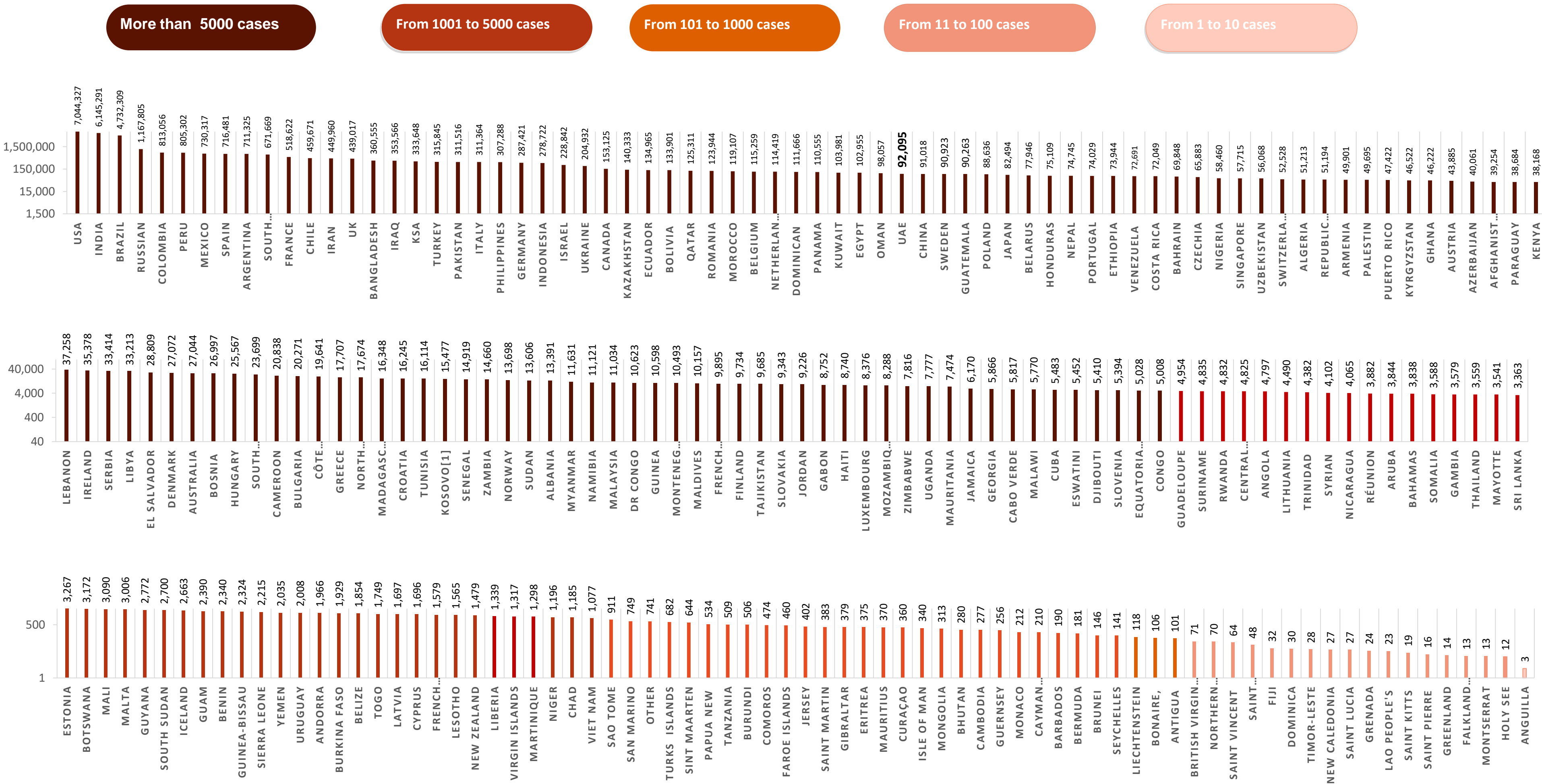
From 101 to 1000 cases

From 11 to 100 cases

From 1 to 10 cases

No confirmed cases

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



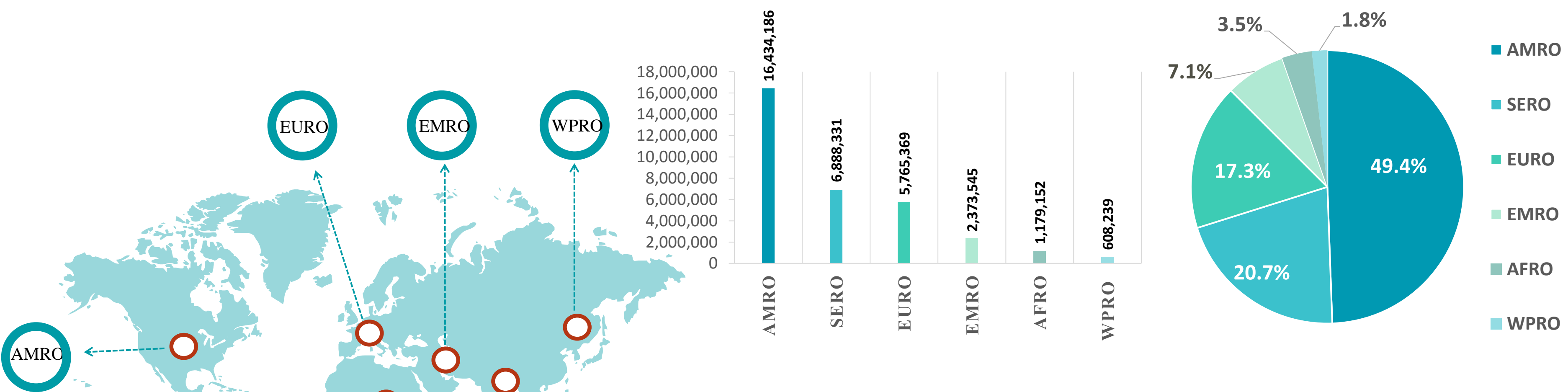
Other\*: includes cases and deaths reported under the international conveyance(Diamond Princess)



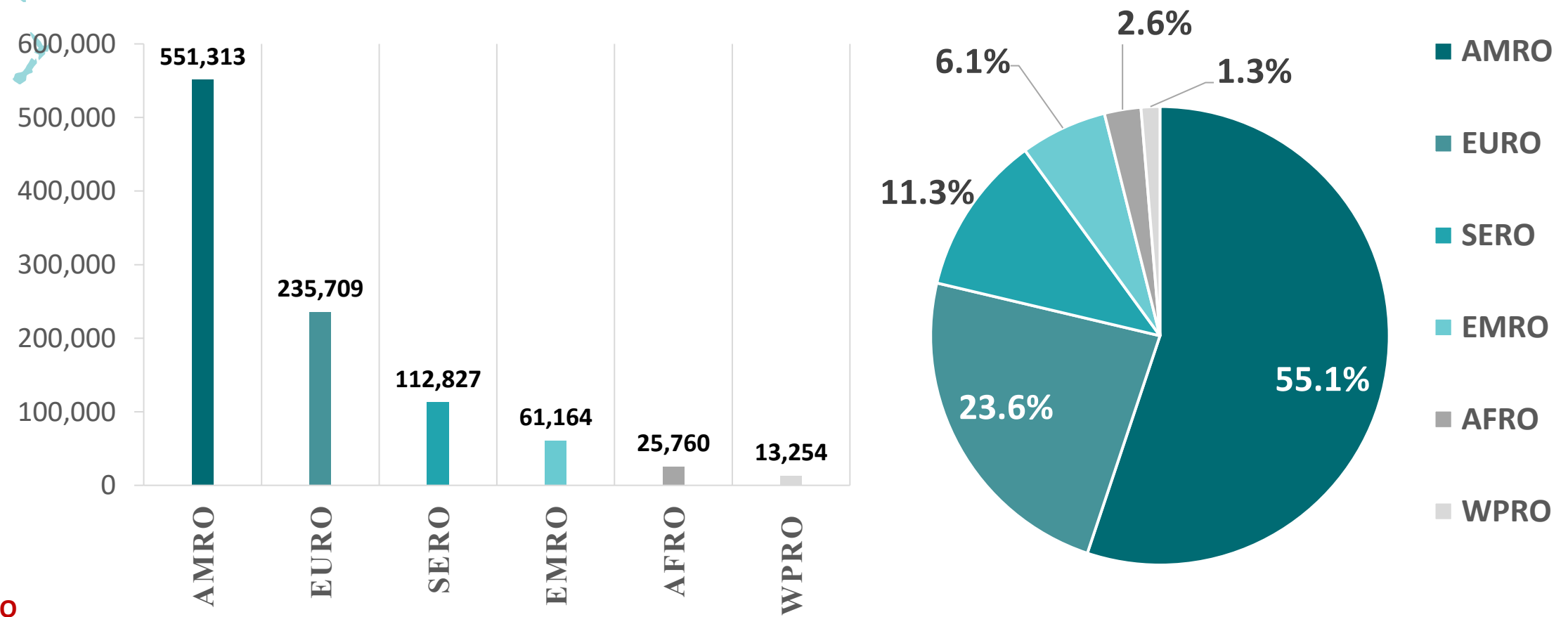


Figure 8: Global Distribution of COVID-19 Cases per Region

## INFECTED

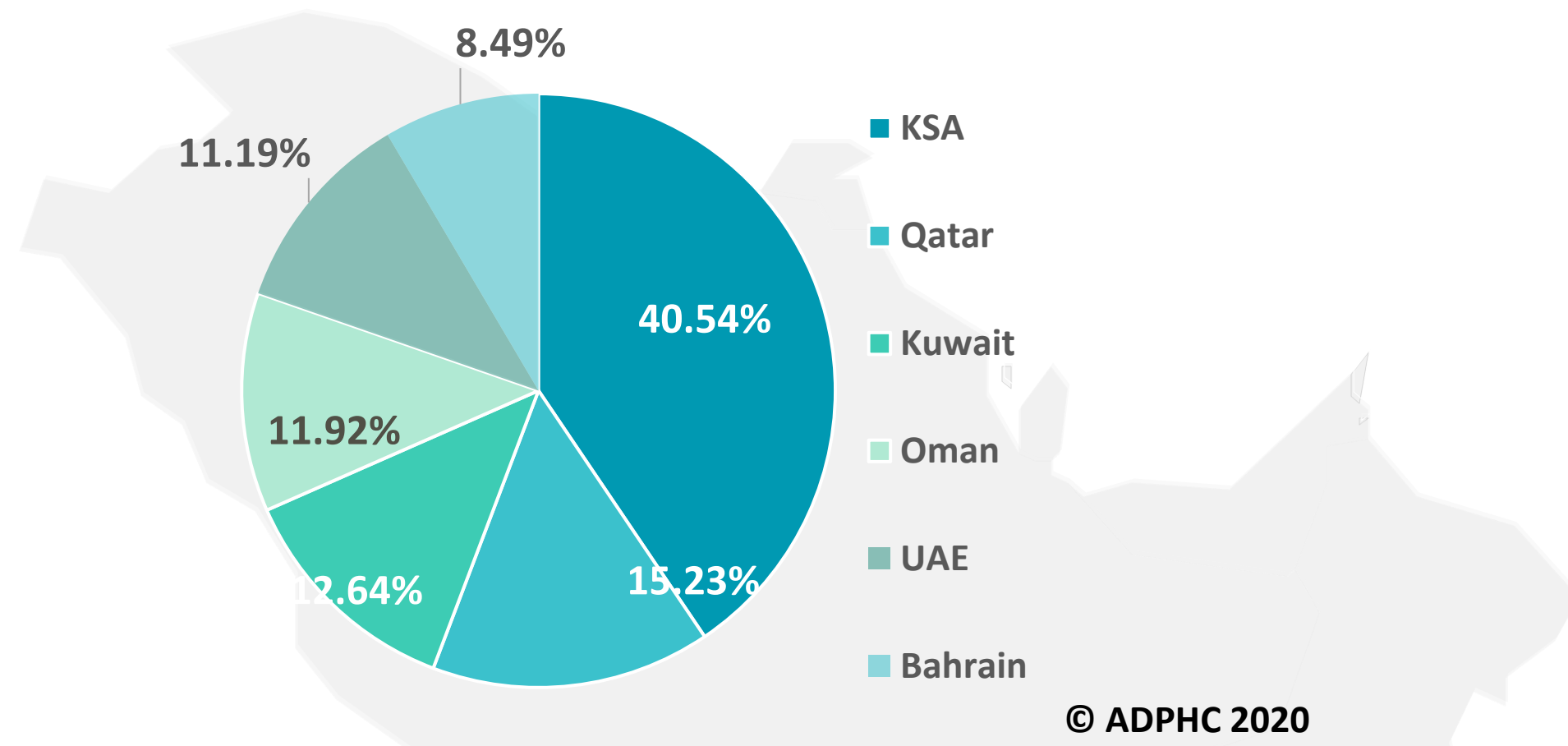


## DEATHS

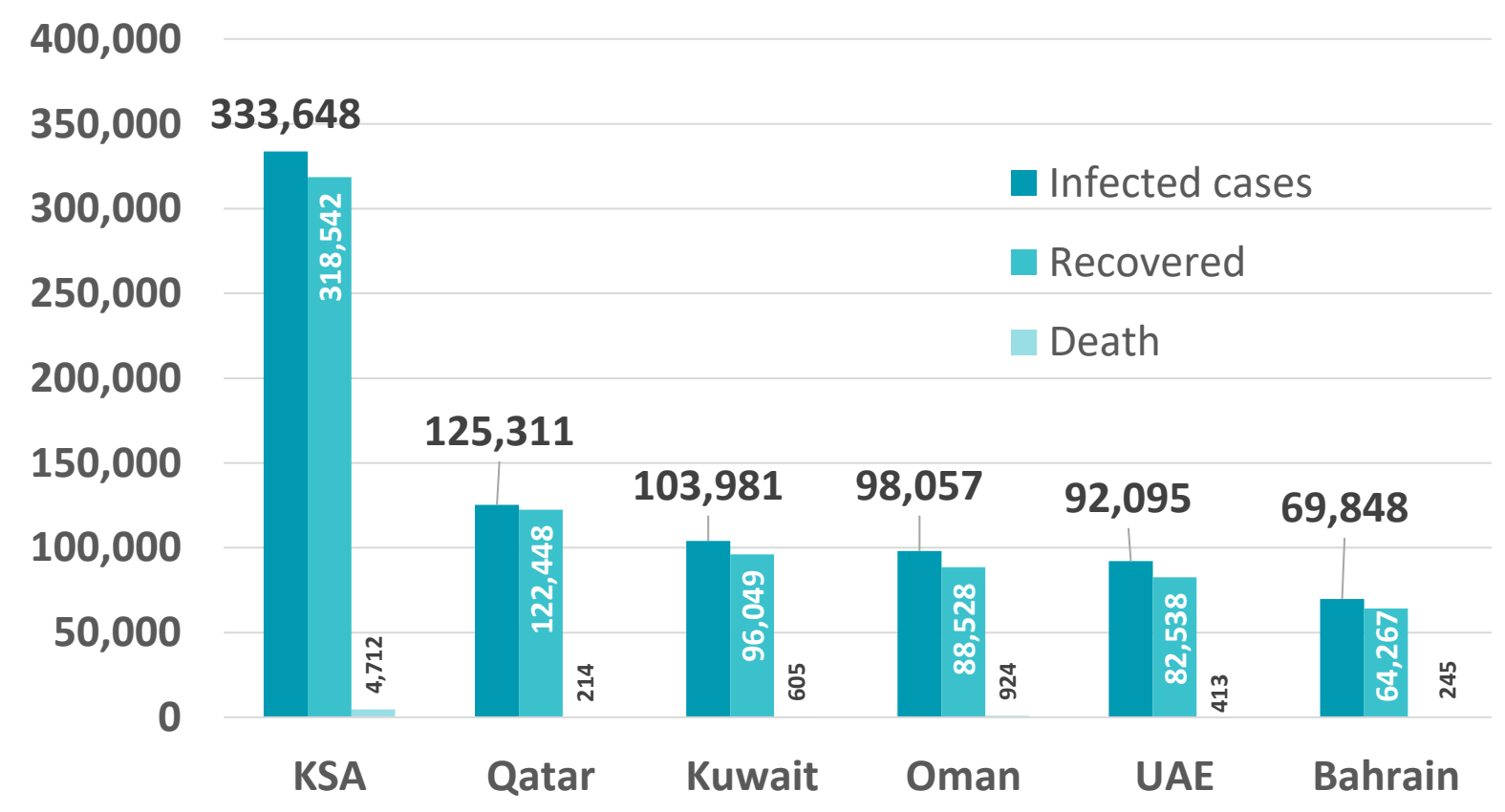


## Figure 9: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

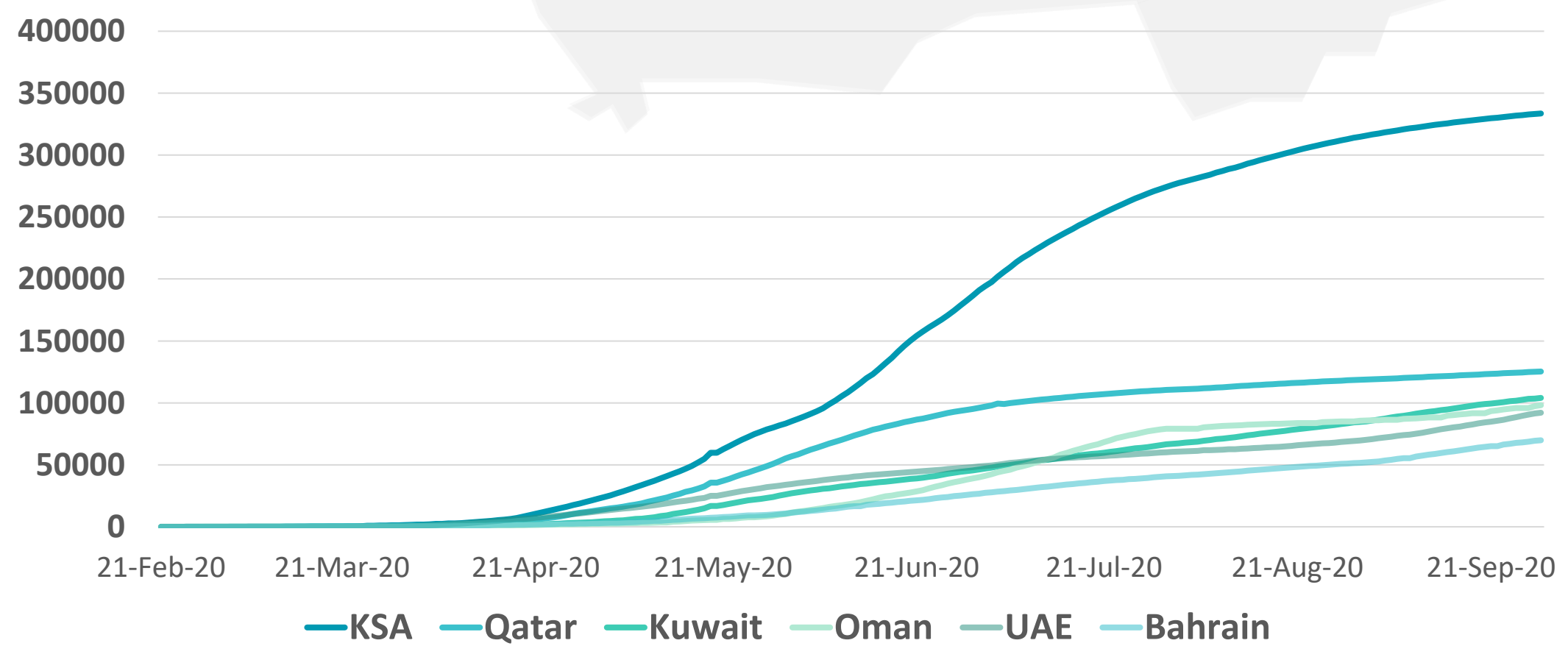
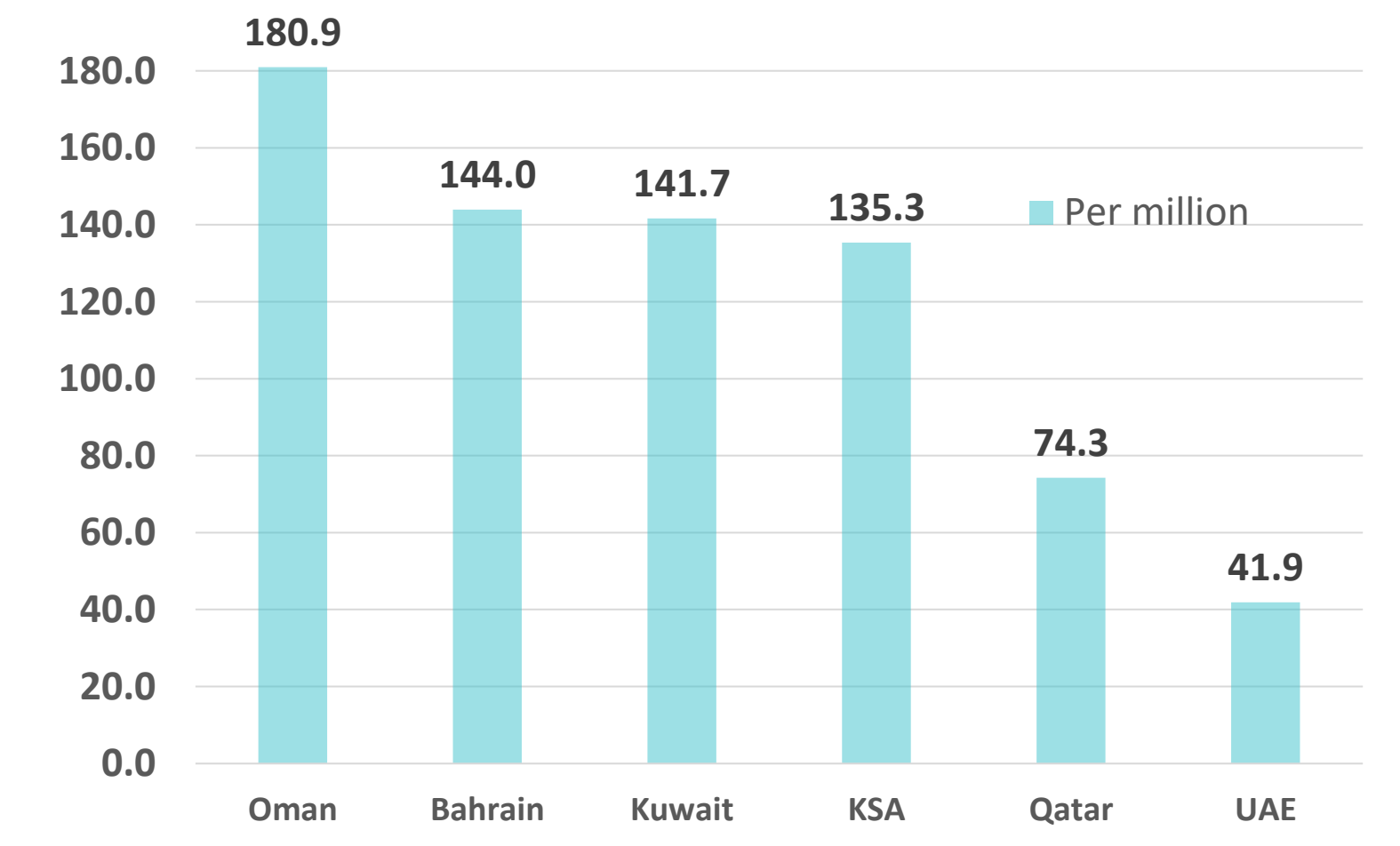
### TOTAL NUMBER OF INFECTED CASES



### TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



### DEATHS PER MILLION



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

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

### UAE



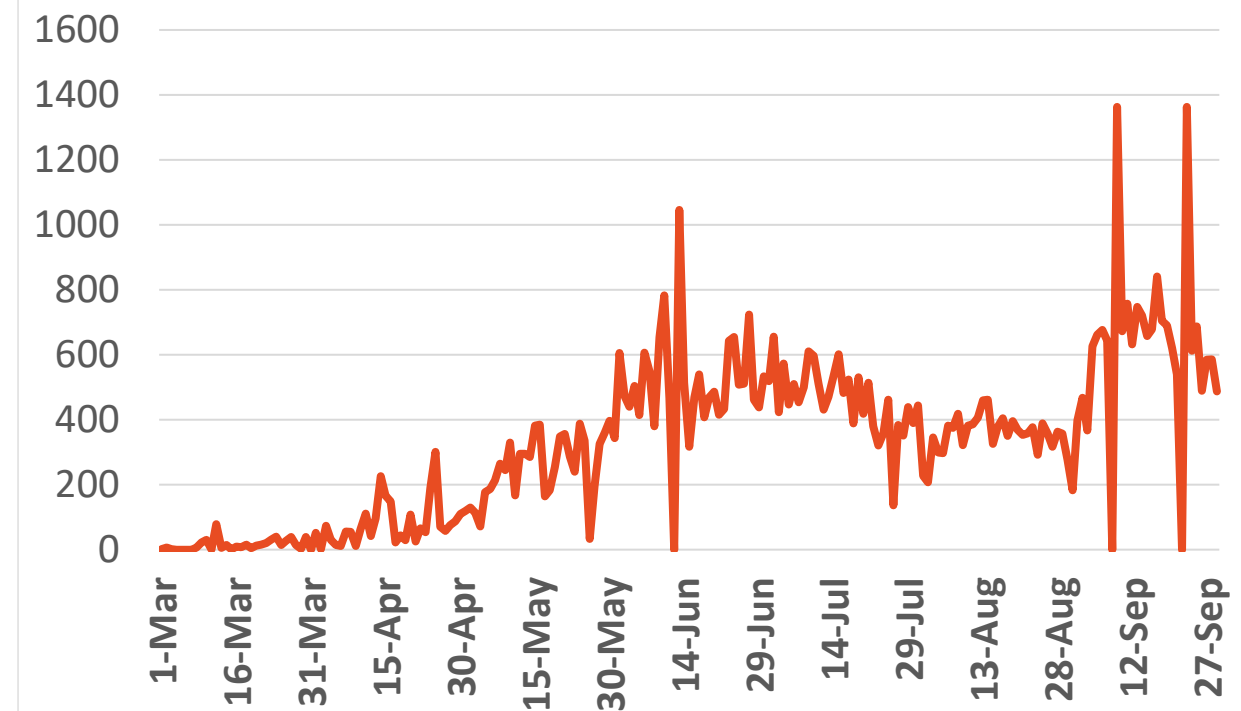
Source : National Emergency Crisis and Disaster Management Authority

### KSA



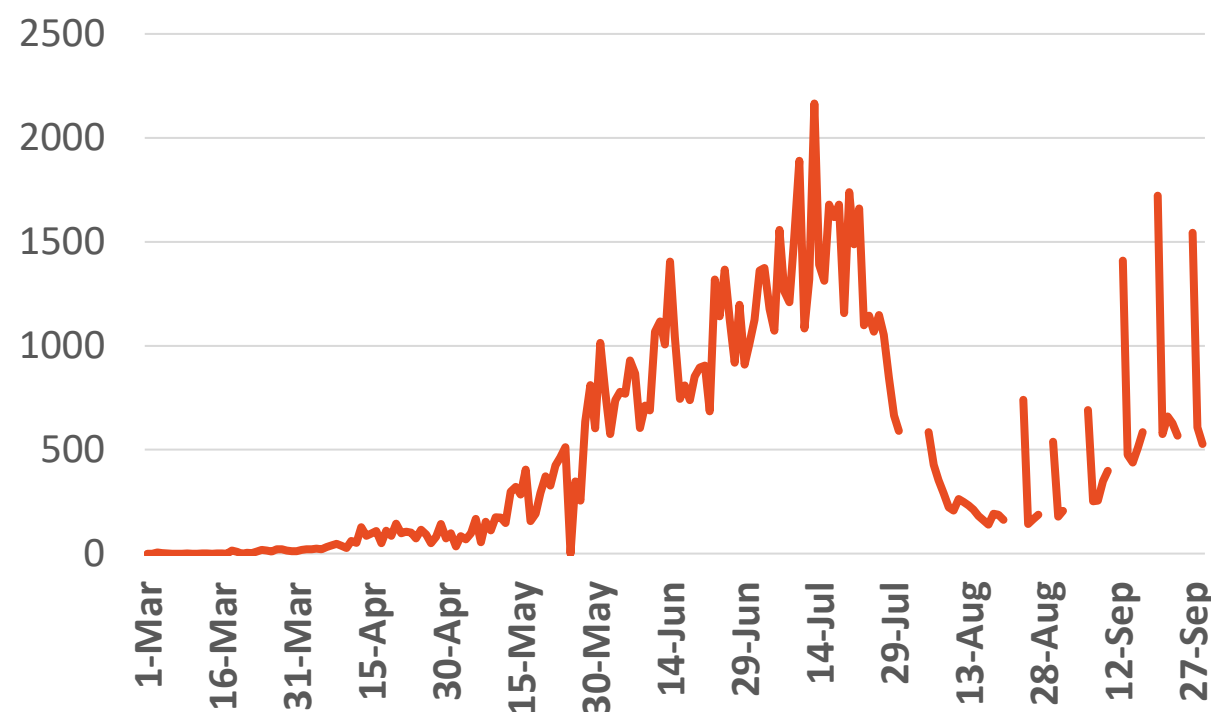
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman

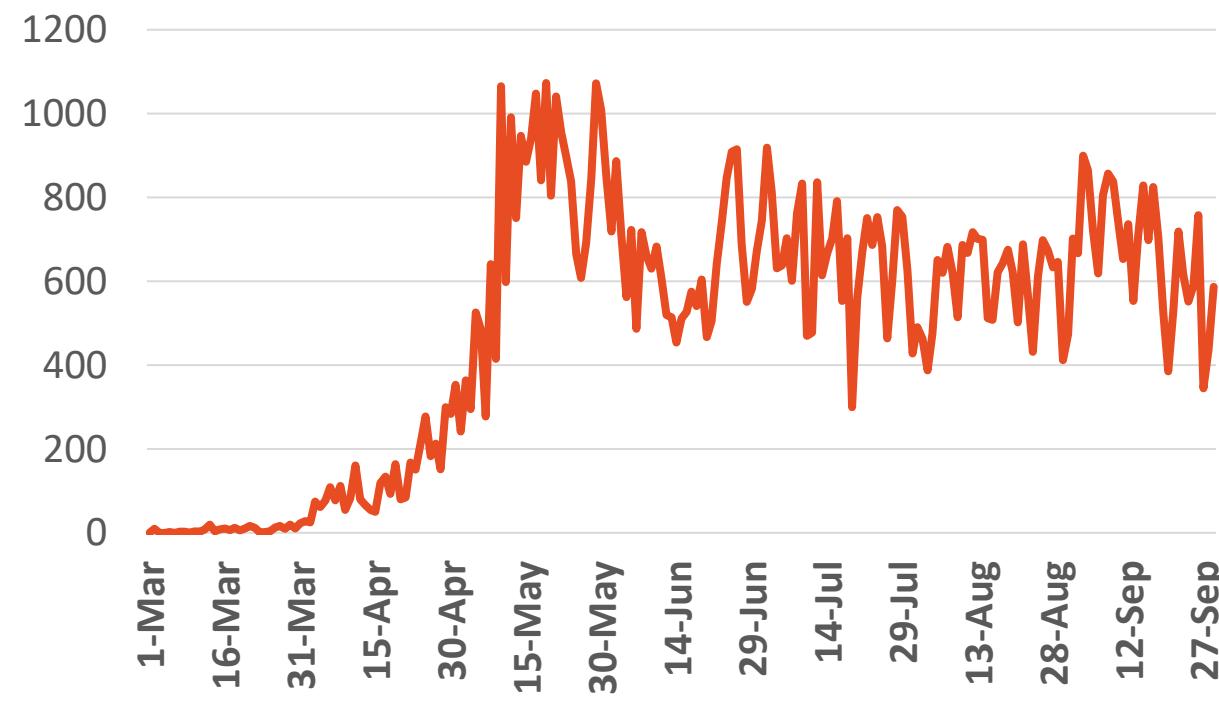


Source :Oman ministry of health

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

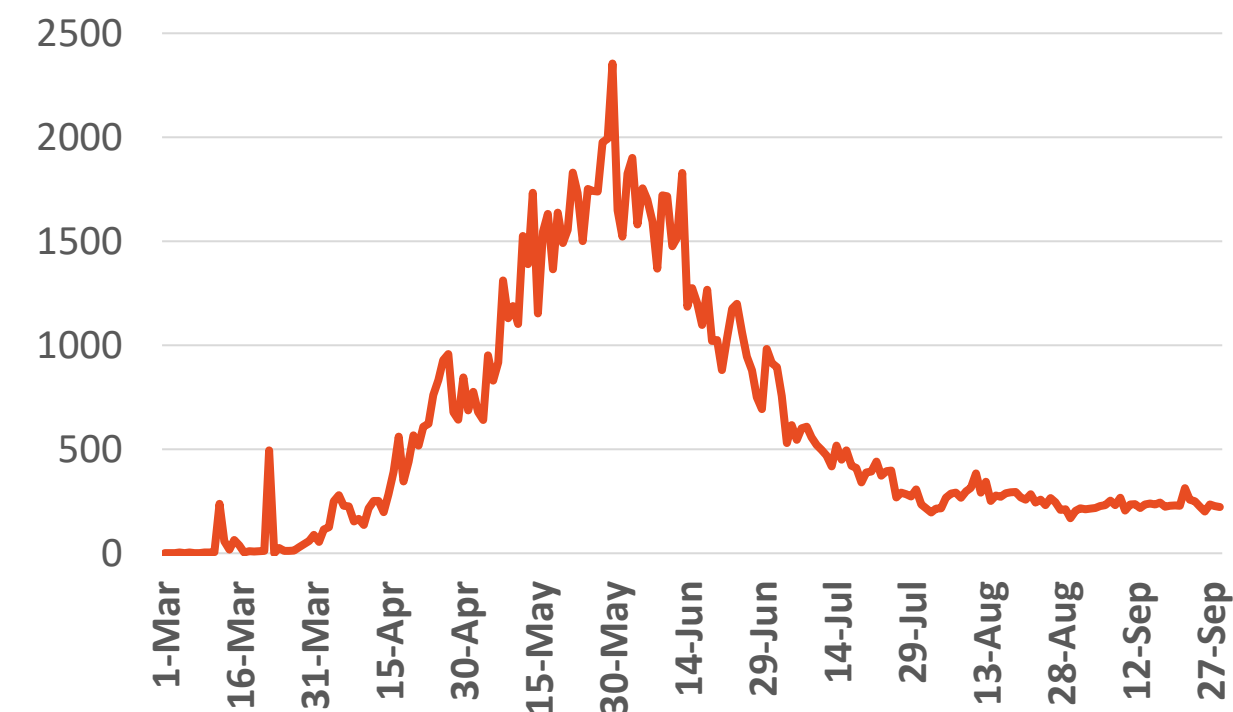
### Kuwait

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Source : Kuwait ministry of health

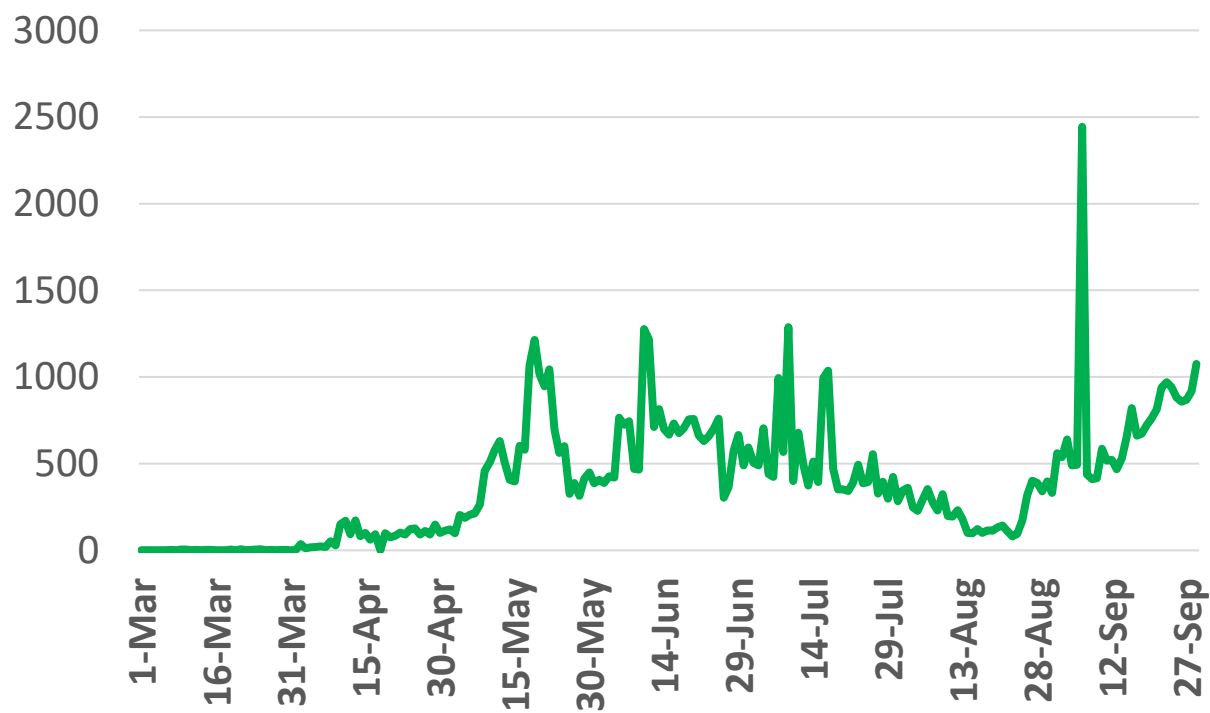
### Qatar



Source : Qatar ministry of health

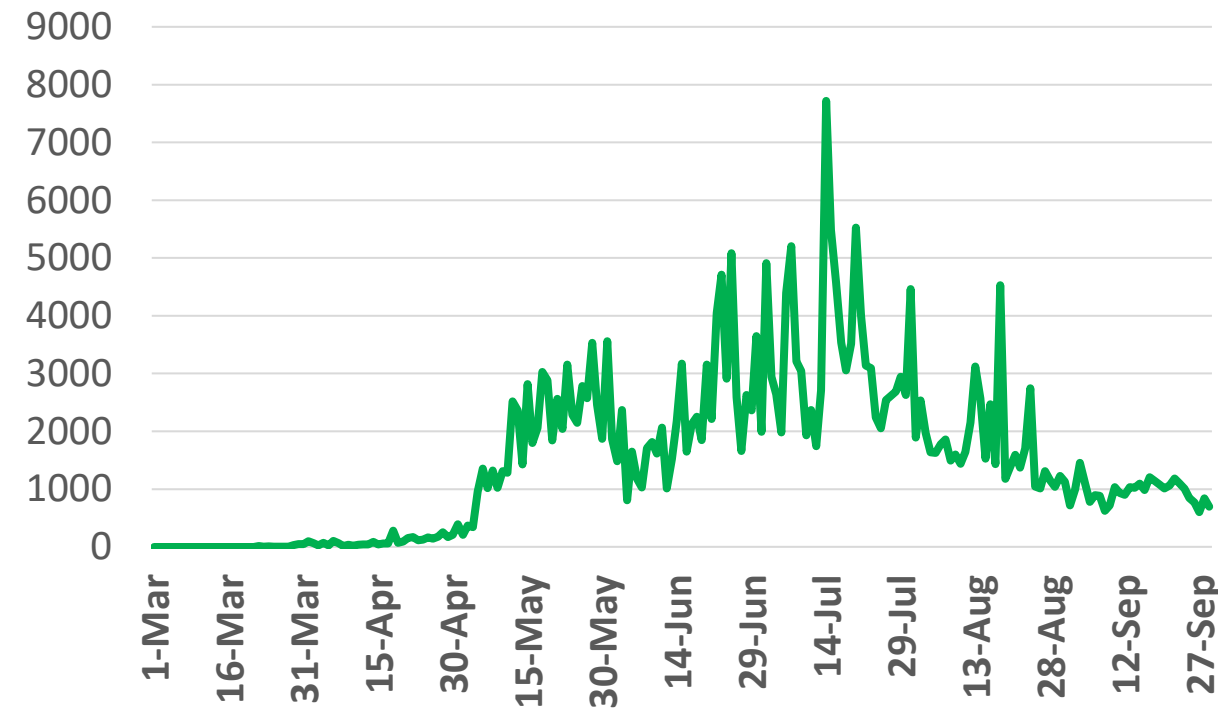
**Figure 11: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries**

## UAE



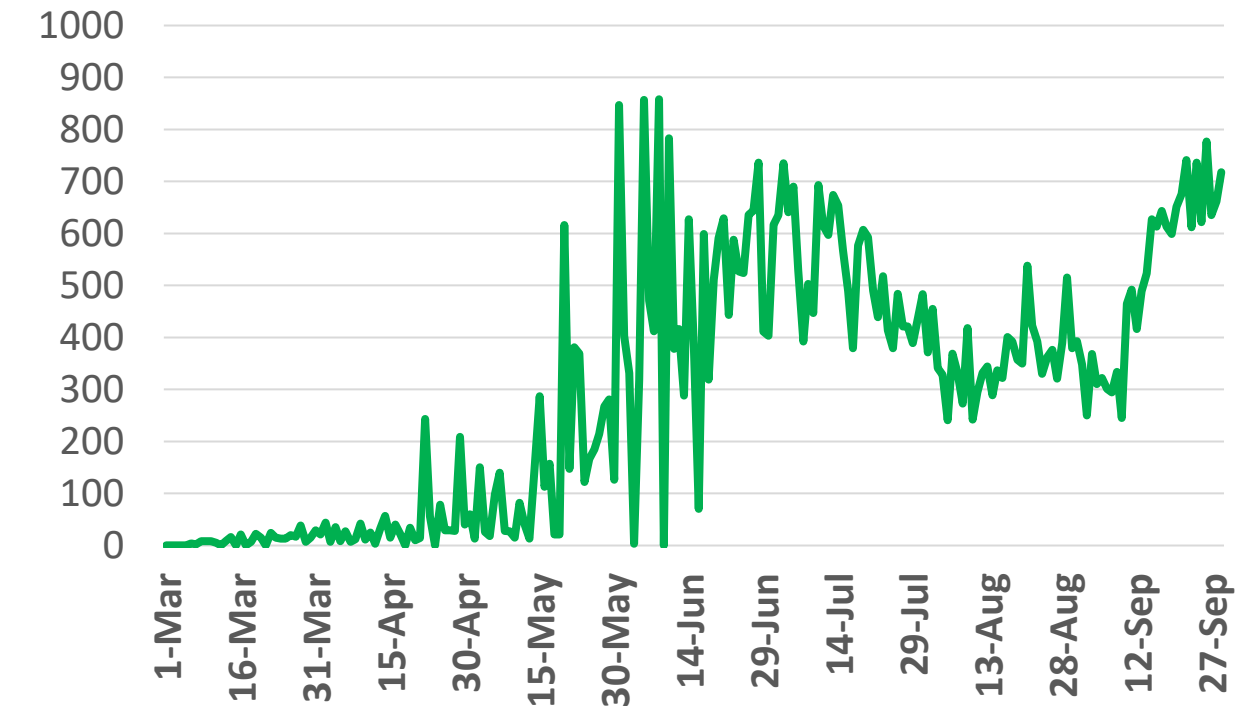
Source : National Emergency Crisis and Disaster Management Authority

## KSA



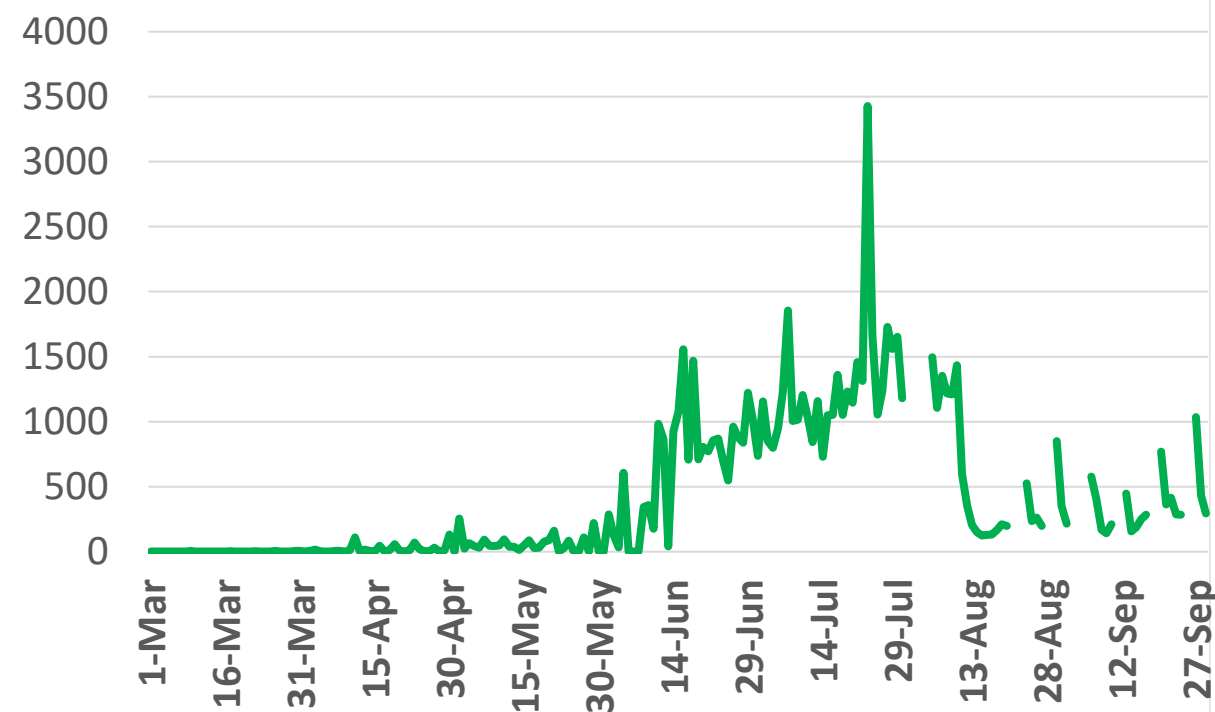
Source : KSA ministry of health

## Bahrain



Source : Bahrain ministry of health

## Oman



Source : Oman ministry of health

\*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

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

## Kuwait

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Source : Kuwait ministry of health

## Qatar

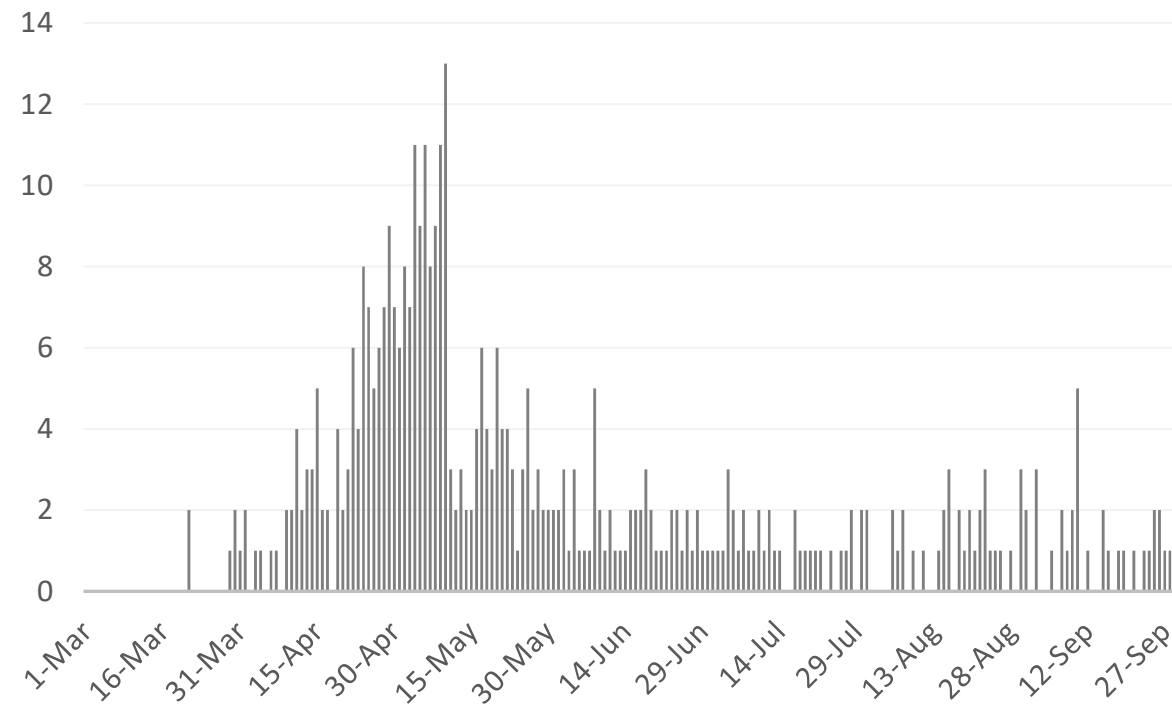


Source : Qatar ministry of health



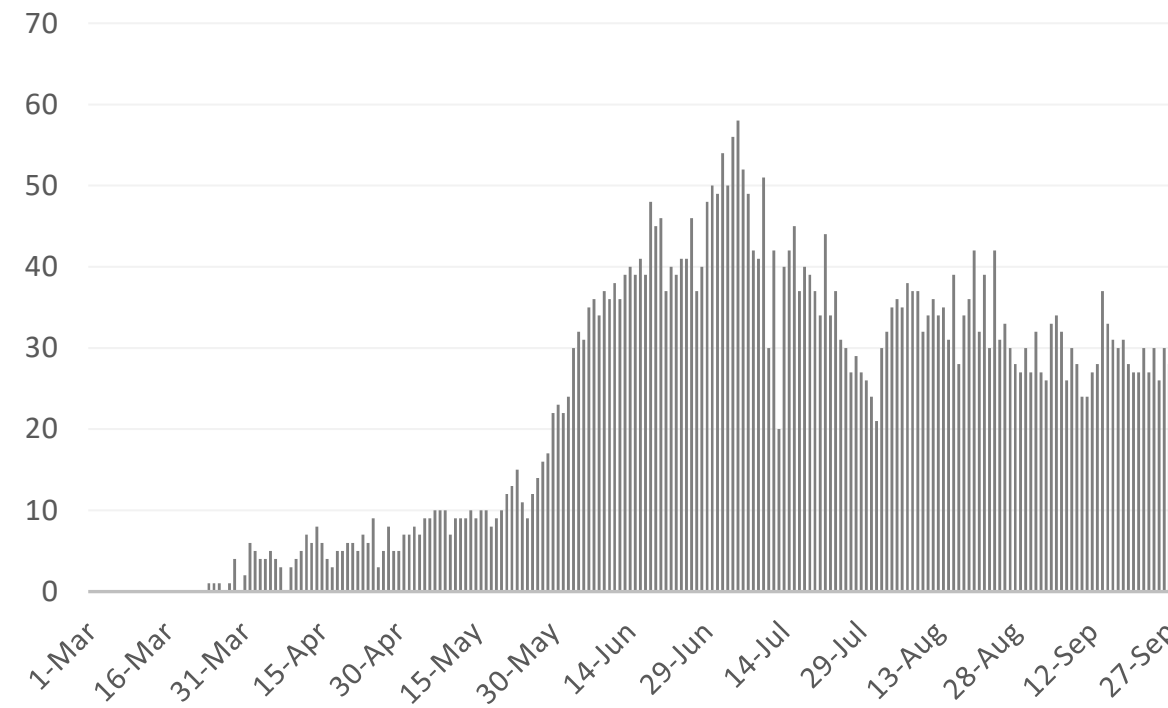
## Figure 12: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

### UAE



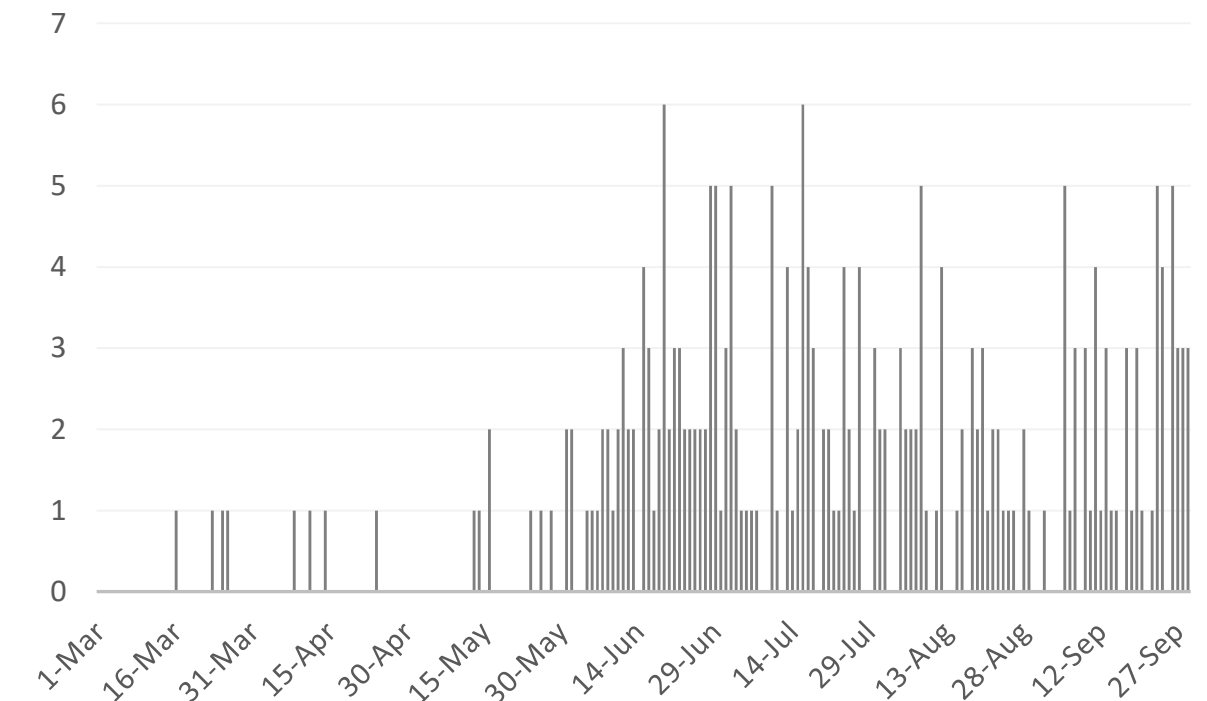
Source : National Emergency Crisis and Disaster Management Authority

### KSA



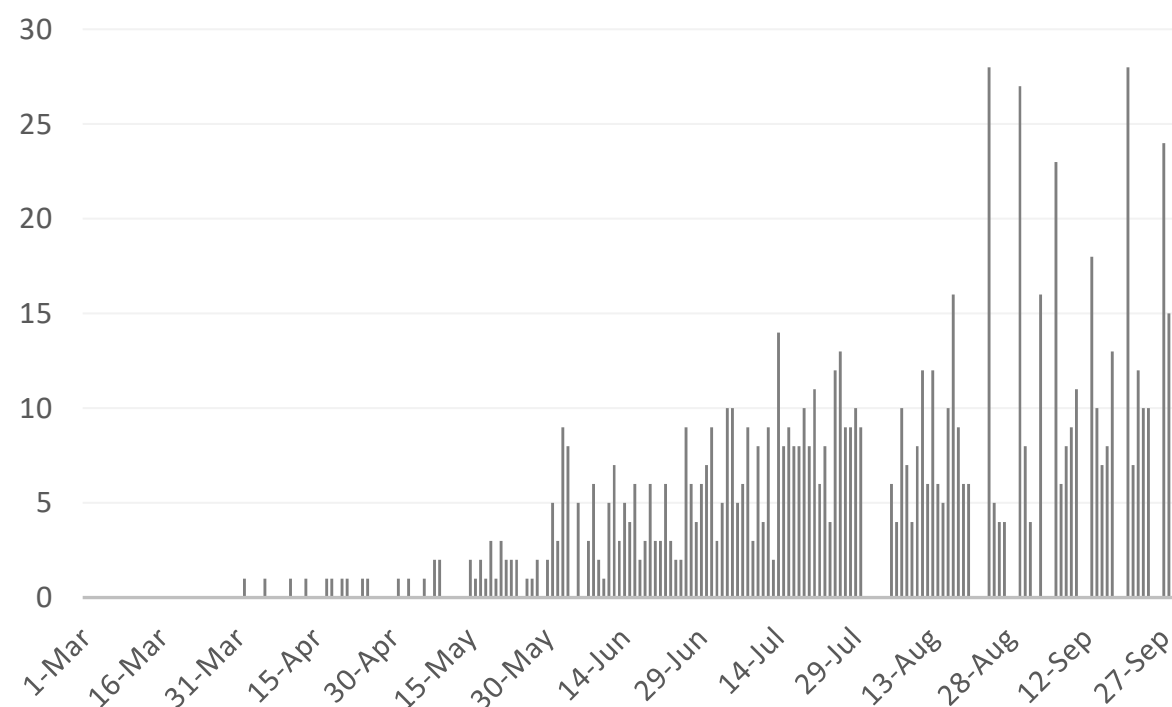
Source : KSA ministry of health

### Bahrain



Source :WHO

### Oman



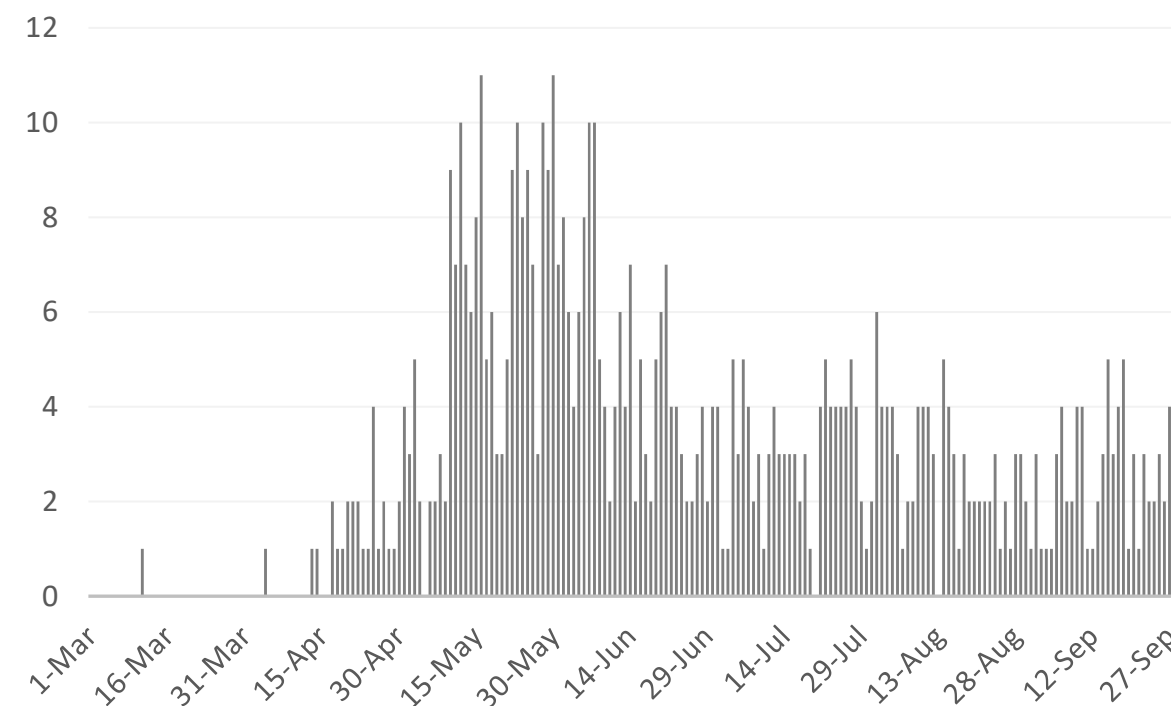
Source :Oman ministry of health

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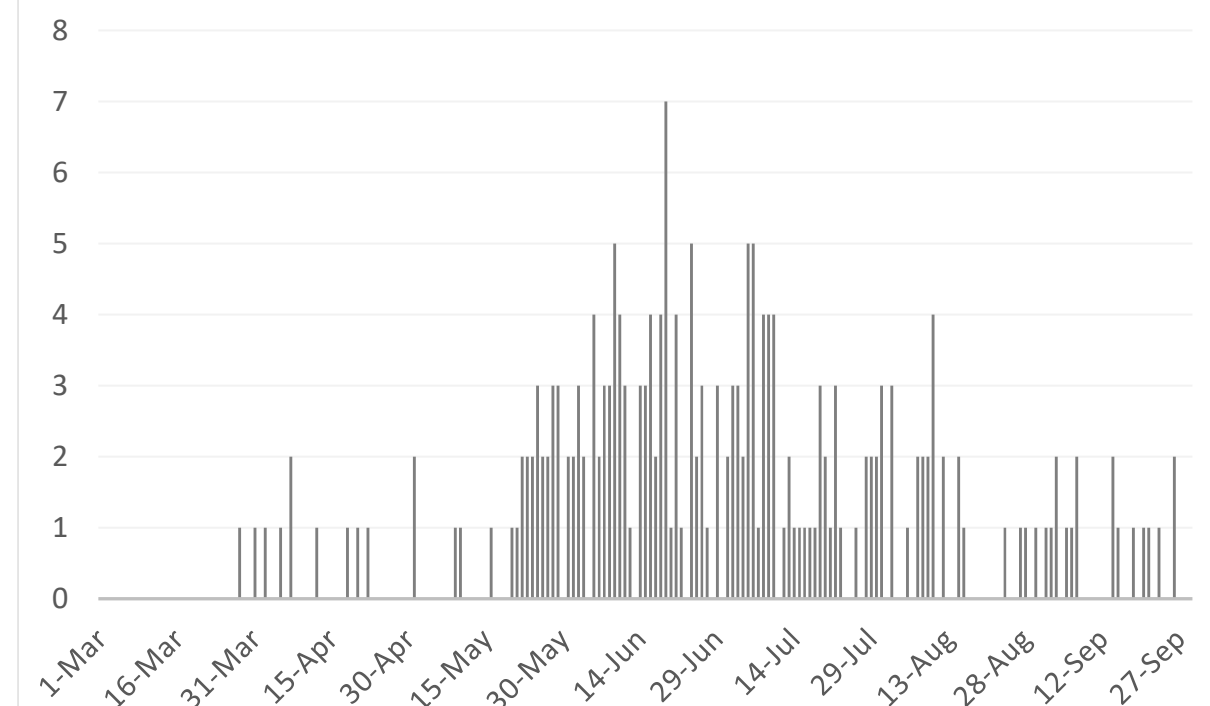
### Kuwait

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Source : Kuwait ministry of health

### Qatar



Source : Qatar ministry of health





## Article 1

# Patient Trajectories Among Persons Hospitalized for COVID-19

Published

September 22, 2020 in [Annals of internal medicine](#)

Using a combination of demographic and clinical data gathered from seven weeks of COVID-19 patient care early in the coronavirus pandemic, researchers have published a 'prediction model' they say can help other hospitals care for COVID-19 patients -- and make important decisions about planning and resource allocations. The researchers developed a prediction model using a set of risk factors known to be associated with COVID-19 to forecast how likely a patient's disease is to worsen while being treated in a hospital and at what point in their care that might happen. Among the risk factors researchers considered as part of the model were a patient's age, body mass index (BMI), lung health and chronic disease, as well as vital signs and the severity of a patient's COVID-19 symptoms at the time of admission.

The model, called the "COVID Inpatient Risk Calculator (CIRC)," is available online ([rsconnect.biostat.jhsph.edu/covid\\_predict/](https://rsconnect.biostat.jhsph.edu/covid_predict/)). The calculator is meant to help hospital physicians and other health care providers assess the risk of a patient's condition worsening.





## Article 2 Performance characteristics of five immunoassays Published for SARS-CoV-2: a head-to-head benchmark comparison Sept 23, 2020 in the [LANCET](#)

- This study aimed to investigate the performance of four high-throughput commercial SARS-CoV-2 antibody immunoassays and a novel 384-well ELISA. The specificity and sensitivity were derived from 976 pre-pandemic blood samples (collected between Sept 4, 2014, and Oct 4, 2016) and 536 blood samples from patients with laboratory-confirmed SARS-CoV-2 infection, collected at least 20 days post symptom onset (collected between Feb 1, 2020, and May 31, 2020). Receiver operating characteristic (ROC) curves were utilized to examine assay thresholds. Four commercial, widely available assays and a scalable 384-well ELISA can be used for SARS-CoV-2 serological testing to achieve sensitivity and specificity of at least 98%. The oxford immunoassay and siemens assay achieved these metrics without further optimization. This benchmark study in immunoassay assessment must allow refinements of testing strategies and the best practice of serological testing resource to benefit individuals and population health.





## Article 3

Published

# COVID-19 among people experiencing homelessness in England: a modelling study

Sept 23, 2020 in the [LANCET](#)

- This study aimed to estimate the avoided deaths and health-care use among individuals experiencing homelessness during the so-called first wave of COVID-19 in England—i.e., the peak of infections occurring between February and May, 2020—and the potential impact of COVID-19 on this population in the future. A discrete-time Markov chain model of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection was used in the study. The model was calibrated to 4% of the homeless population acquiring SARS-CoV-2, and estimated that 24 deaths (95% prediction interval 16–34) occurred. The SARS-CoV-2 outbreaks in homeless settings lead to a high attack rate among individuals experiencing homelessness, even if incidence remains low in the general population. Outbreaks can be prevented by providing stable single-room accommodation and by heightening infection control measures in homeless settings. Such interventions can avoid large numbers of deaths.







## Article 4

# Viral presence and immunopathology in patients with lethal COVID-19: a prospective autopsy cohort study

Published

September 25, 2020 • in the [LANCET](#)

- This prospective autopsy cohort study was performed at Amsterdam University Medical Centers (UMC), the Netherlands. The aim of this study was to assess the duration of viral presence, identify the extent of inflammatory response, and investigate the underlying cause of coagulopathy. The cohort (n=21) included 16 (76%) men, having a median age of 68 years. Median disease course (time from the symptoms onset to death) was 22 days. Around 11 patients were tested for SARS-CoV-2 tropism, the SARS-CoV-2 infected cells were found in multiple organs, most profusely in the lungs, but presence in the lungs became sporadic with amplified disease course. Other SARS-CoV-2-positive organs such as gastrointestinal tract, kidneys, heart, and upper respiratory tract. In histological organ analysis (sampled from 9 to 21 patients/organ), an extensive inflammatory response was present in the brain, kidneys, liver, heart and lungs. Extensive inflammation was observed in the brain in the medulla oblongata, and olfactory bulbs. Neutrophilic plugs and Thrombi were found in the liver, kidneys, heart, lungs, brain and spleen and were most commonly observed during the course of diseases. This study underlines the significance of targeting the immune response in COVID-19 patients and substantiates the possible useful effects of low-dose dexamethasone in COVID-19 treatment. These results produce novel questions surrounding the potential role of NETs in persistent immune activation and in SARS-CoV-2-induced coagulopathy.



# THANK YOU

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