

SCIENTIFIC RESEARCH MONITORING ON COVID-19

6 AUGUST 2020

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SCIENTIFIC RESEARCH MONITORING ON COVID-19

(ISSUE 186)

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



WHO
Report



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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UAE RESEARCH

COVID-19 PREDICTIVE
MODELING

Public Health Response

Reopening Primary
Schools During the
Pandemic

Public Health Response

Finding a Path to Reopen
Schools During COVID-19
Pandemic





- WHO has warned of disruptions to regular health services due to COVID-19. Health workers have been redirected to care for COVID-19 patients, people are hesitating to seek routine care due to fears of infection, and global supply chains of medicines and equipment are strained.
- The WHO discusses a recently released brief on estimating mortality from COVID-19, an extremely useful indicator of the burden of disease that guides policy decisions regarding scarce medical resource allocations.
 - It looks in turn at how to calculate CFR and IFR, potential biases in the detection of cases and deaths, approaches to minimizing these biases in estimating fatality rates during ongoing epidemics, and how to consider groups with different risk profiles, such as older people and those with underlying illness.
- WHO presented a summary of the age and sex distribution of confirmed COVID-19 cases from the WHO COVID-19 global surveillance database from January to July 2020.

Age groups (years)	Cases (%)
0-4	1.2%
5-14	2.5%
15-24	9.6%
25-64	64%
65-84	19.4%
85+	3.4%

- A total of 16 298 556 confirmed cases, had been reported globally. WHO received information for 8 483 026 (52%) confirmed cases: 5 220 697 through CRF and 3 262 329 through weekly aggregate surveillance.
- Among the information received on sex, fifty-three percent were male; and 47 per cent were female.



From 24 February through 12 July 2020 (epidemiological weeks 9 to 28), the proportion of cases aged 0-4 years, 5-24 years and 25-64 years have increased by seven-fold, six-fold and three-fold, respectively (Figure 1). This trend may be explained by, but is not limited to, the following factors:

- Early detection and testing were initially focused on identifying cases with severe symptoms, which are more frequently observed among older people;
- Changes to case definitions and general awareness are now leading to detection of more mild cases, many of whom tend to be younger;
- Expanded availability of testing with numerous drive-through testing, which likely enables increased testing in communities
- Outbreak hotspots shifting over time to countries with lower age profiles (e.g. developing countries, or countries with substantial ex-patriate dormitory populations);
- Risky behavior after easing of public health and social measures implemented to reduce the spread of the virus, which may have increased transmission among younger population.

Figure 1: Distribution by age of confirmed COVID-19 cases per week, COVID-19 WHO surveillance, February to July 2020.

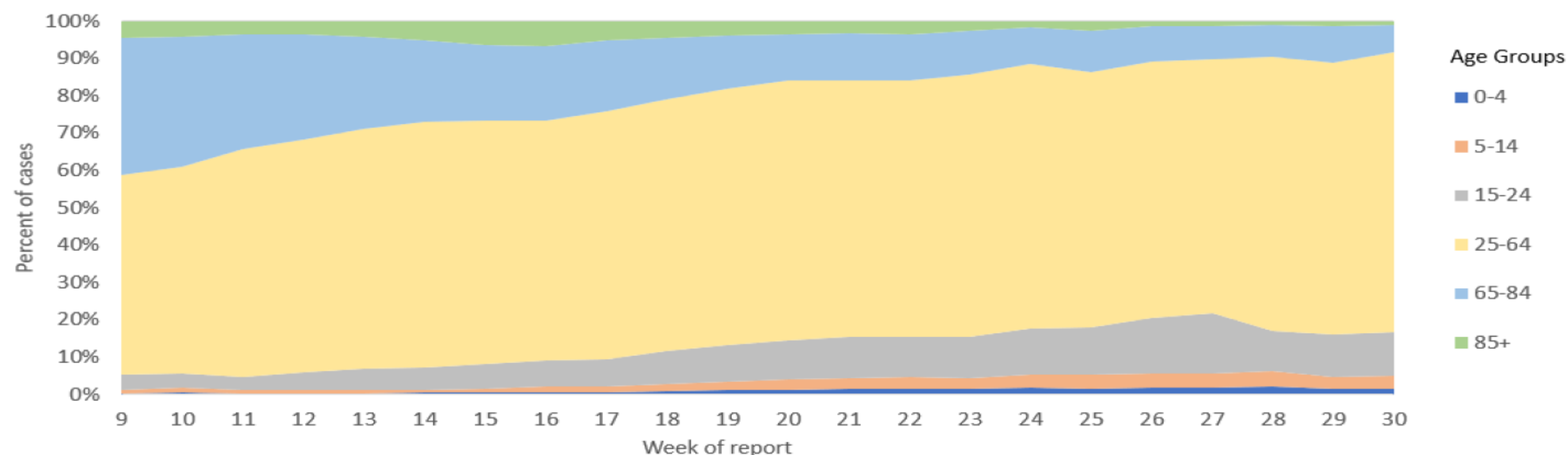
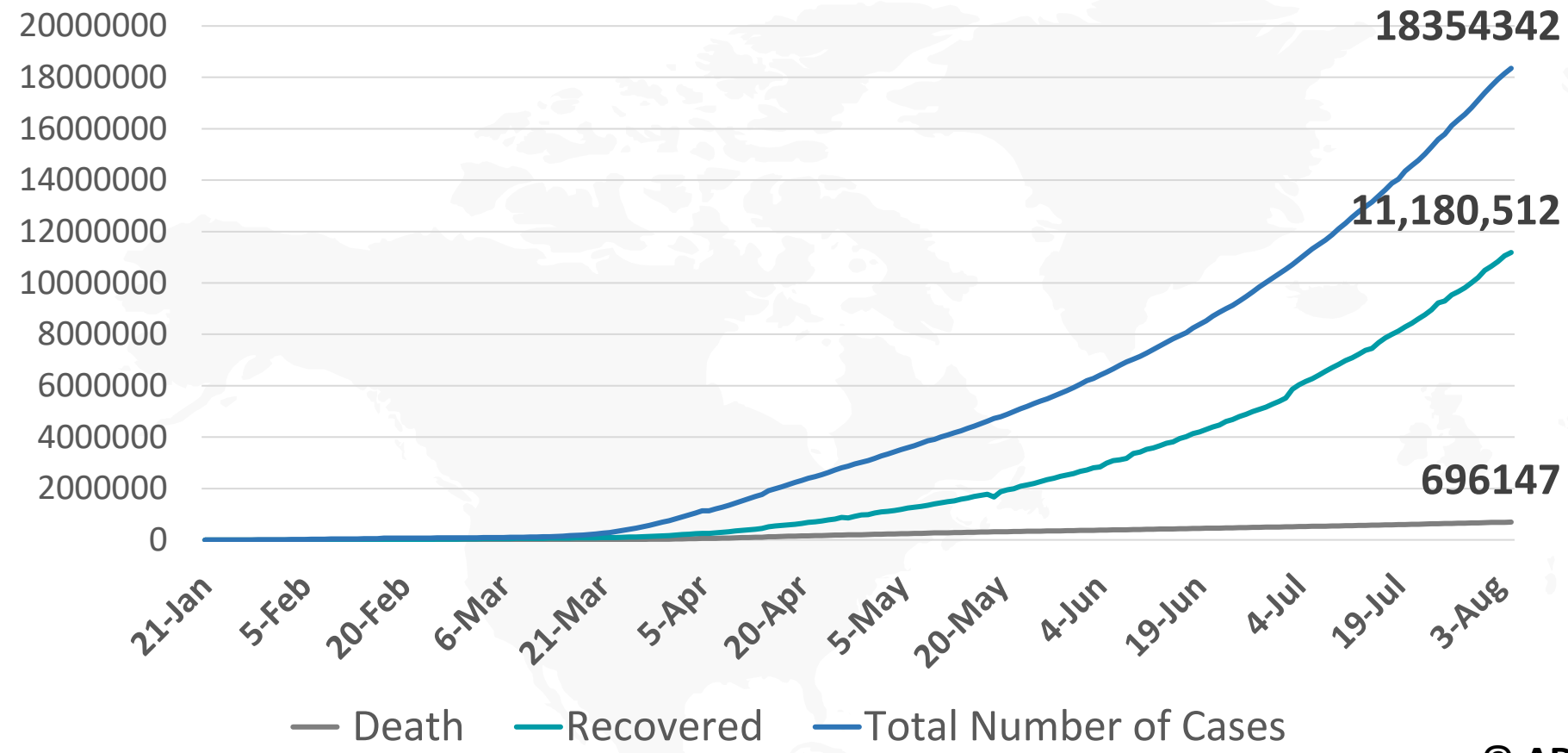


Figure 1: Total Number of Infected, Recovered, and Death Cases



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

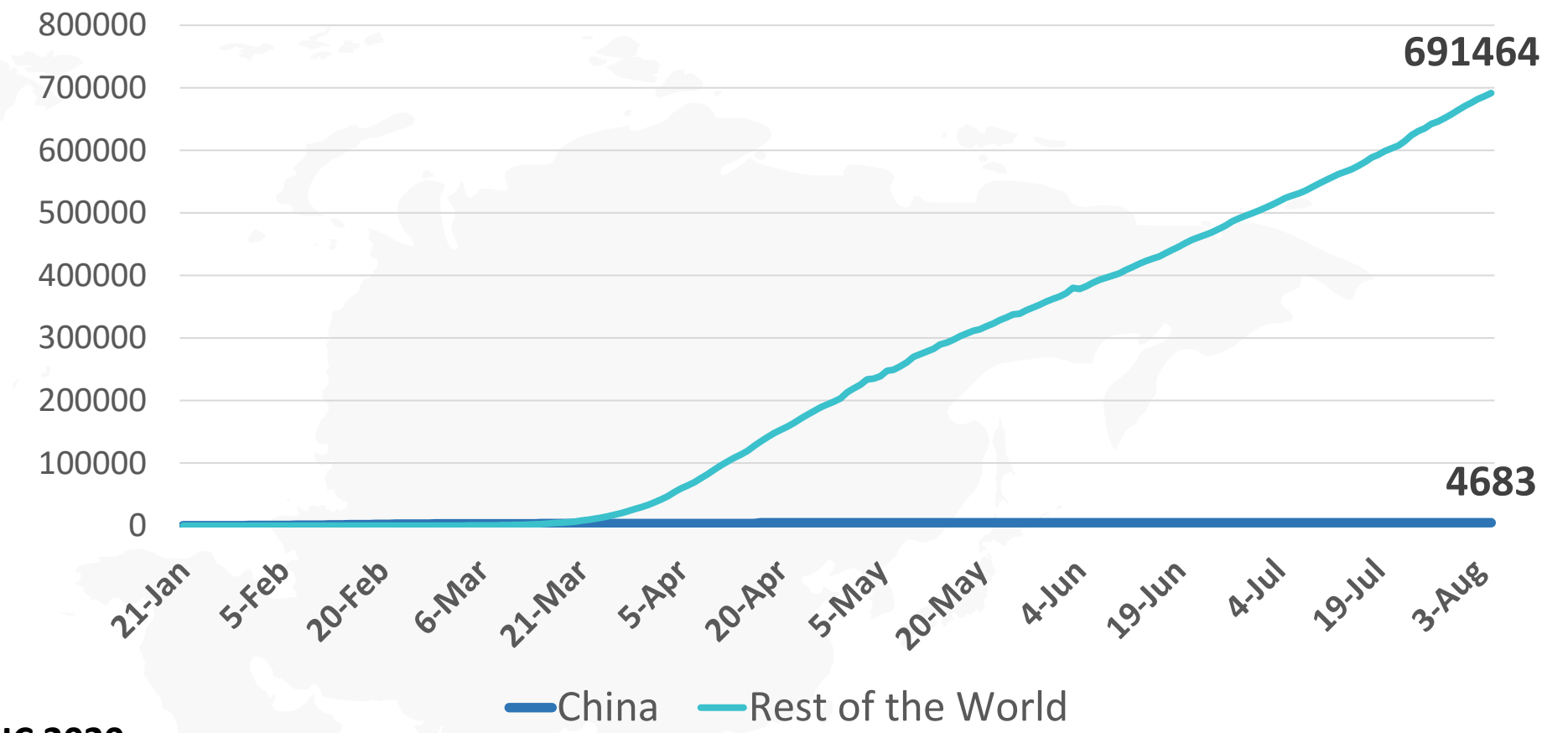


Figure 2: Daily New Infected COVID-19 Cases (China and rest of the world)

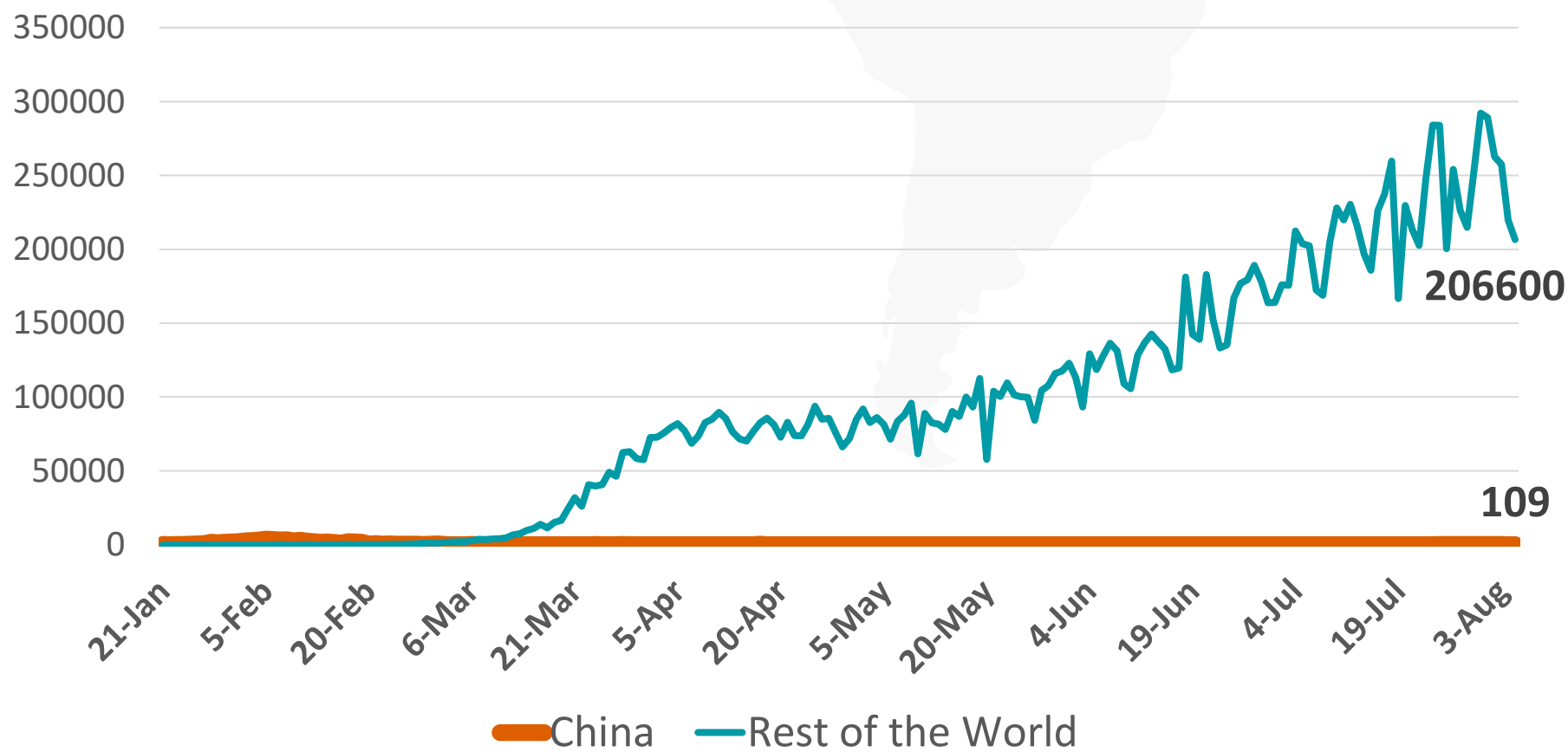


Figure 4: Global Daily New Deaths Due to COVID-19 (China and rest of the world)

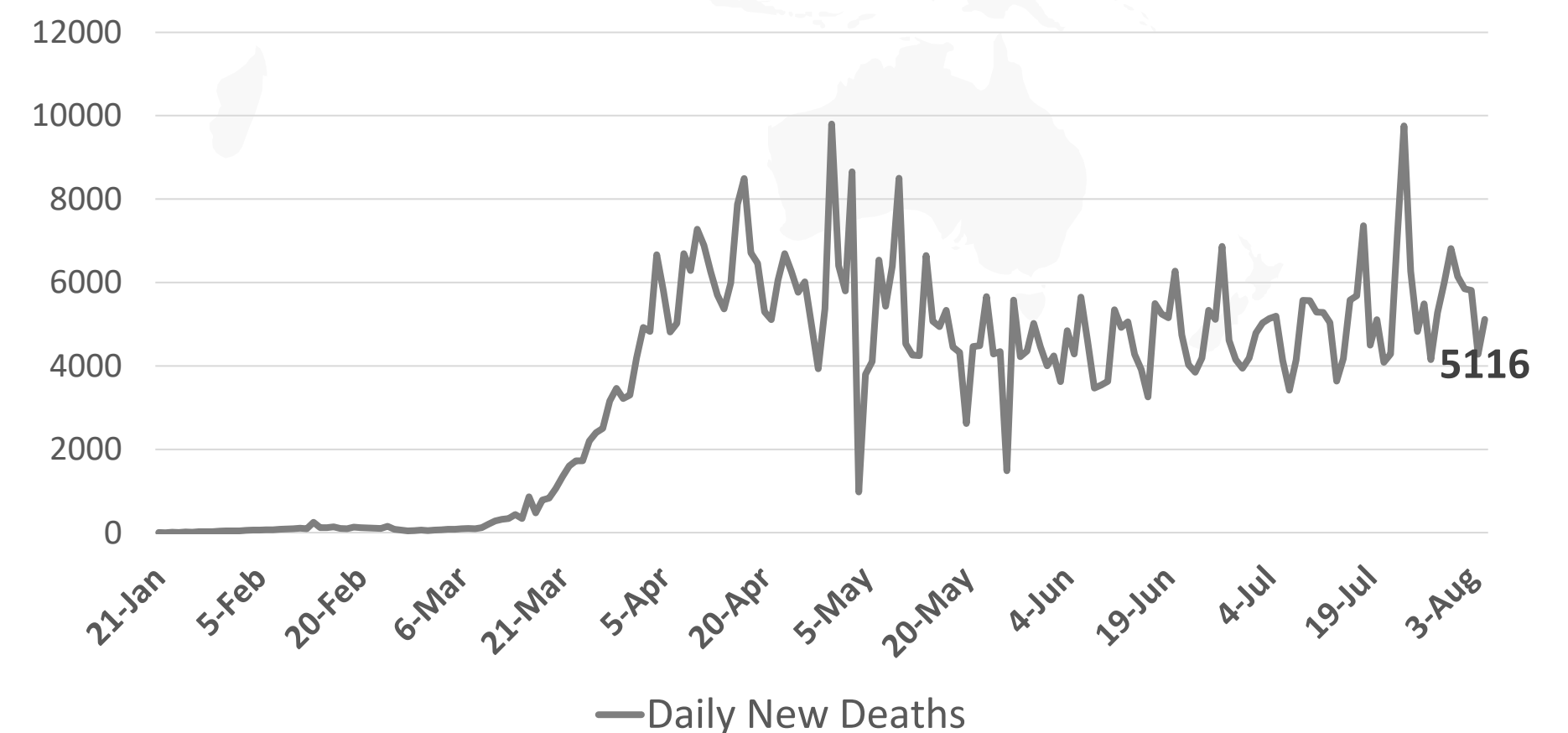
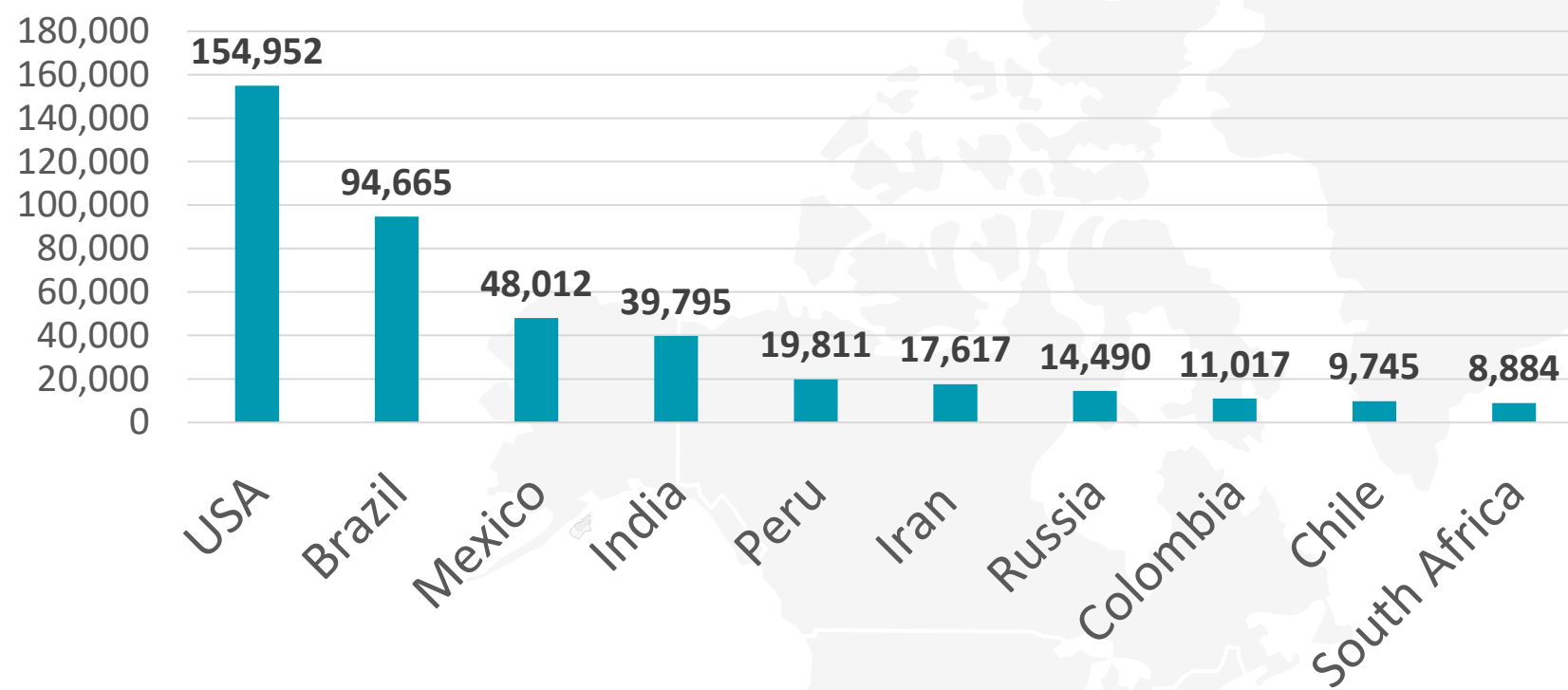
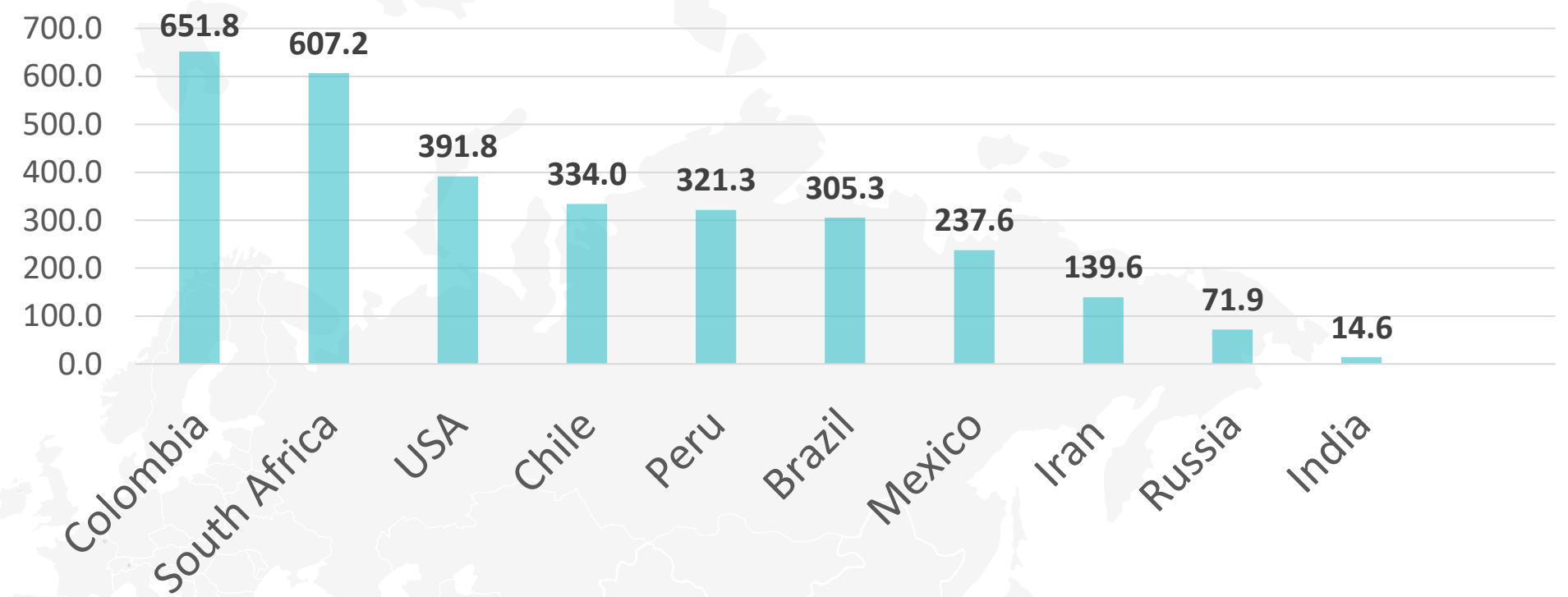


Figure 4: Top 10 Countries in the Total Number of Cases Due to COVID-19

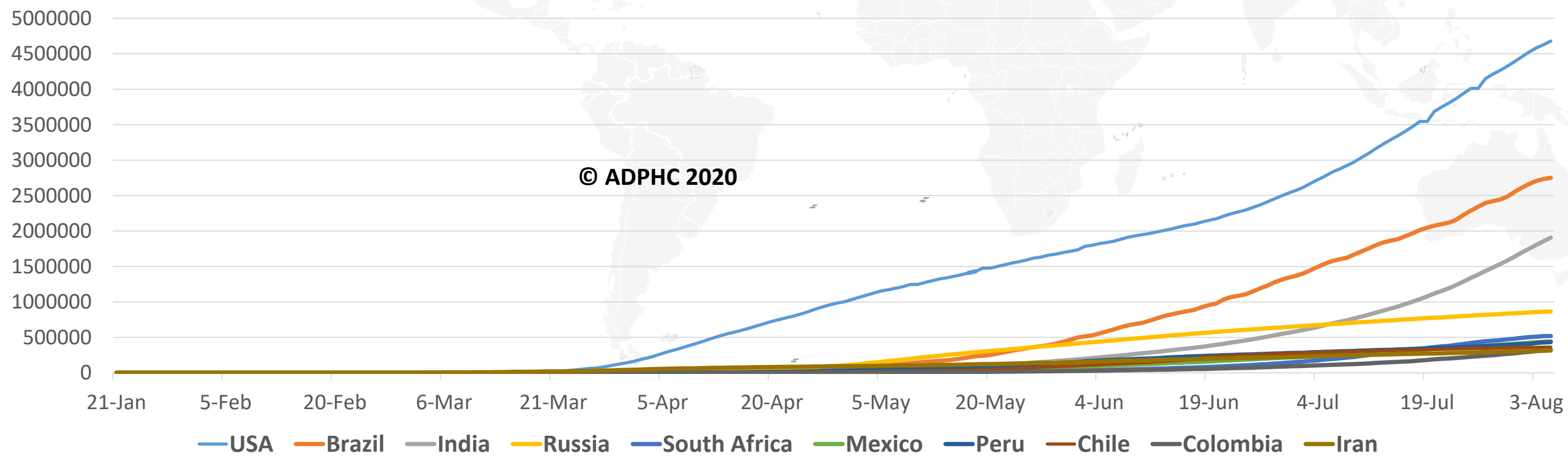
TOTAL DEATHS



DEATHS PER MILLION

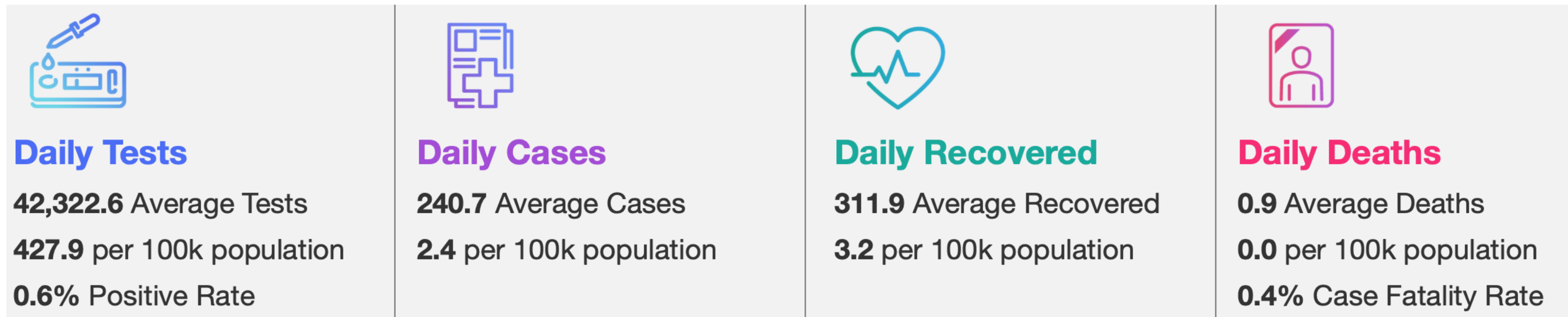


TOTAL INFECTED CASES



USA	4,678,610
Brazil	2,750,318
India	1,908,254
Russia	866,627
South Africa	521,318
Mexico	443,813
Peru	433,100
Chile	362,962
Colombia	327,850
Iran	314,786

Figure 5: 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

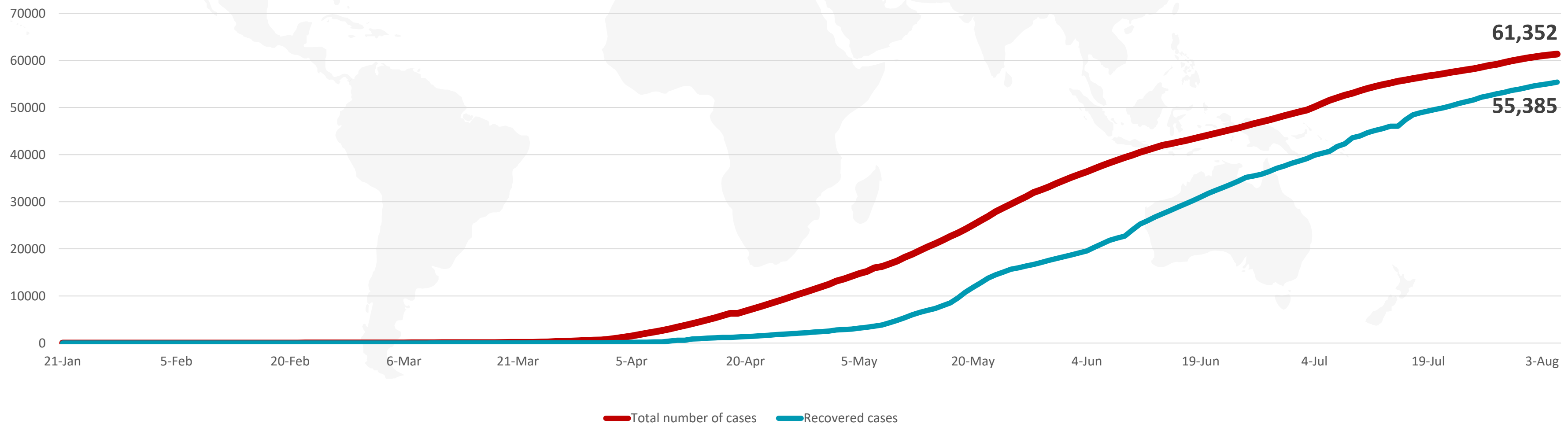


Figure 6A : Global Distribution of COVID-19 Cases

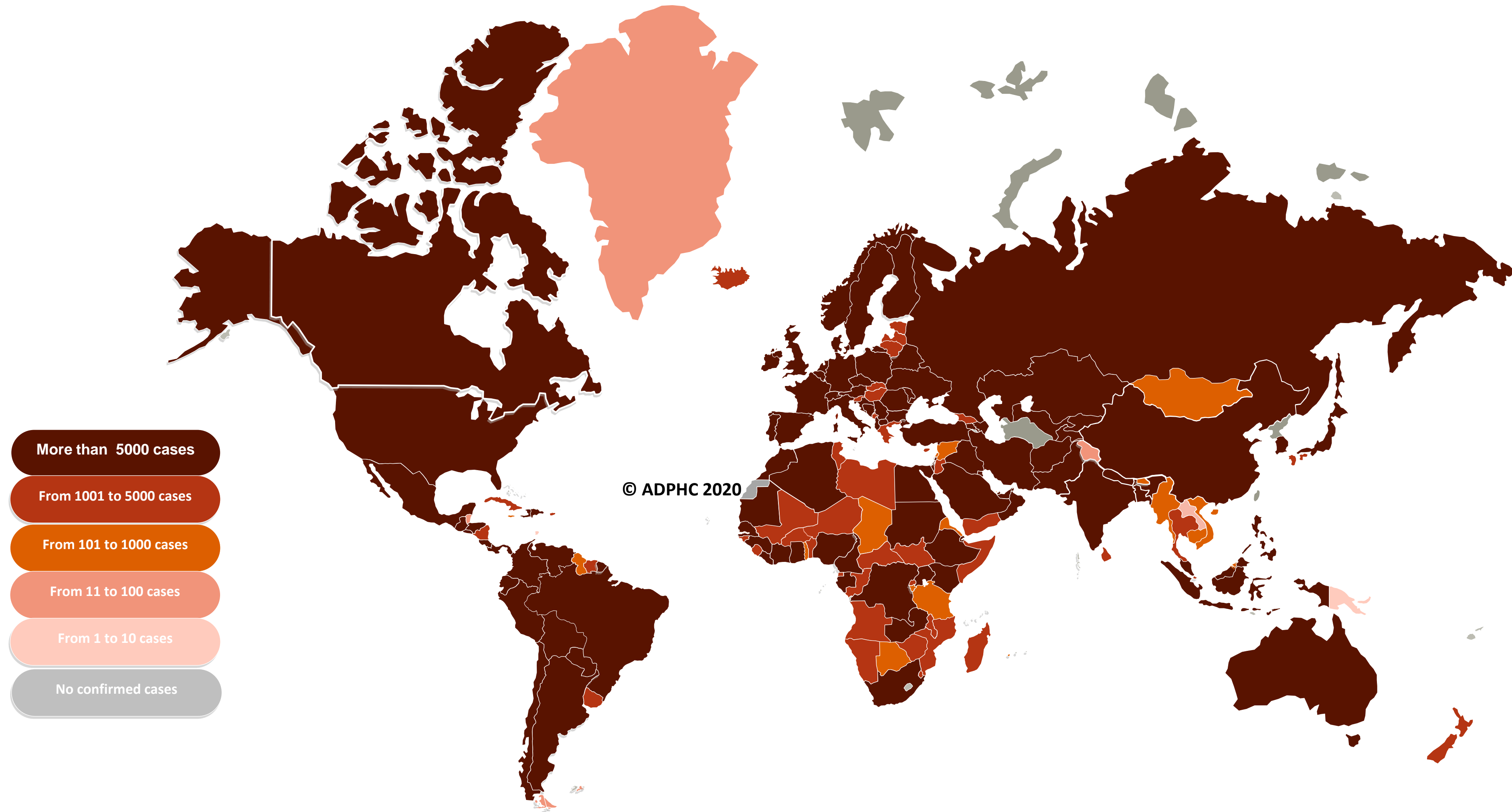
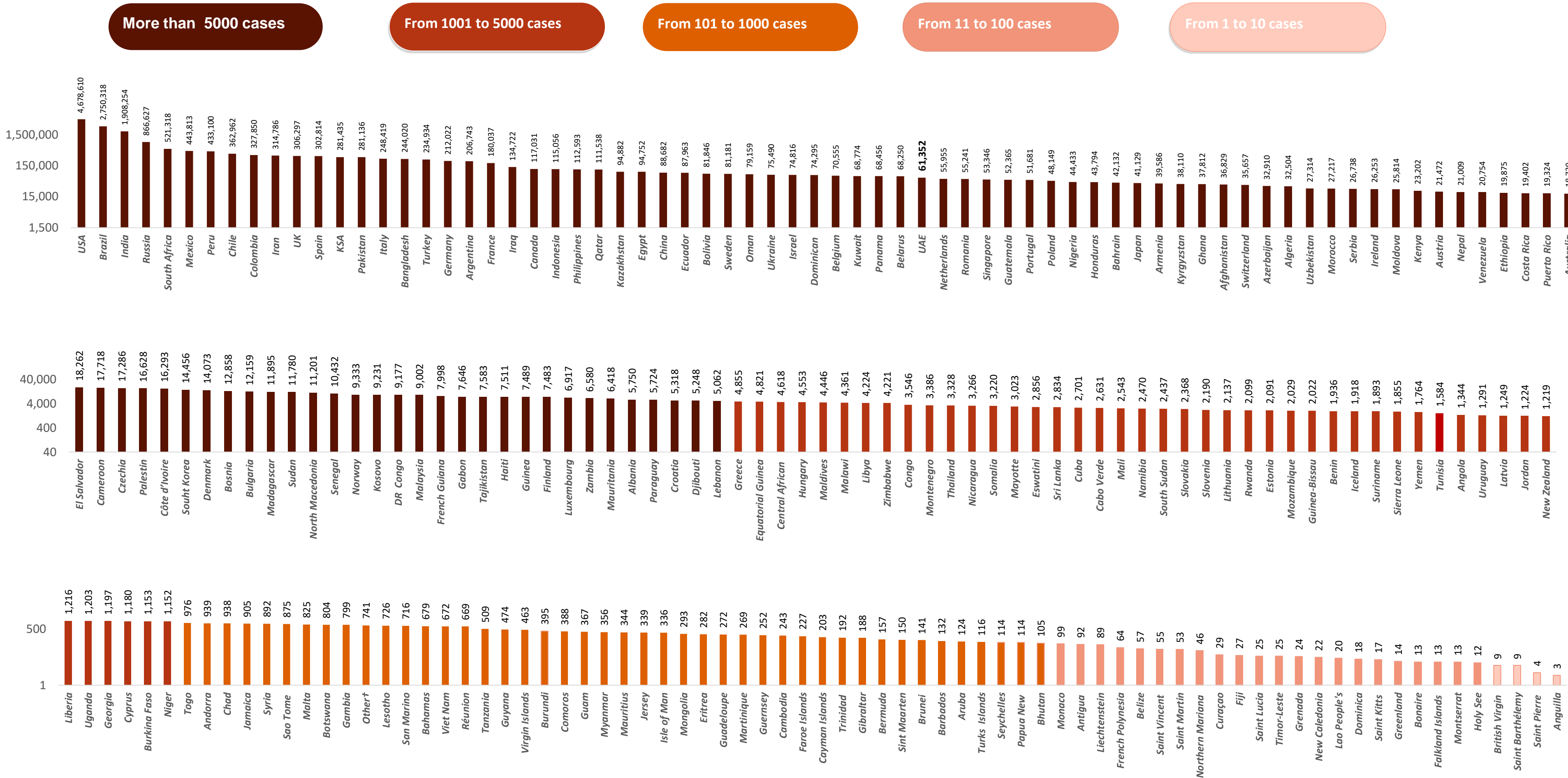


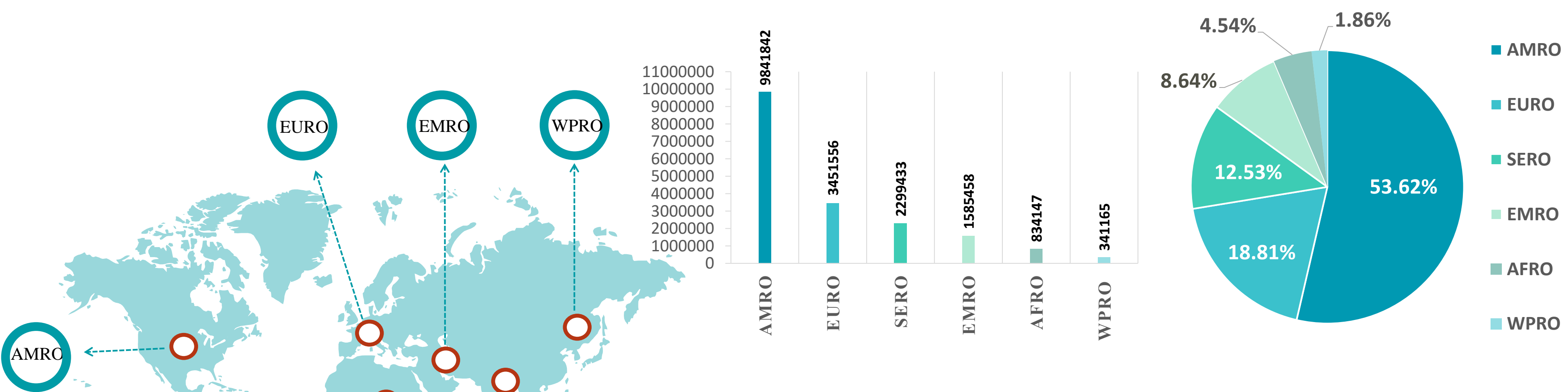
Figure 6B: Bar Chart Illustrates the Global Distribution of COVID-19 Cases



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

Figure 7: Global Distribution of COVID-19 Cases per Region

INFECTED



DEATH

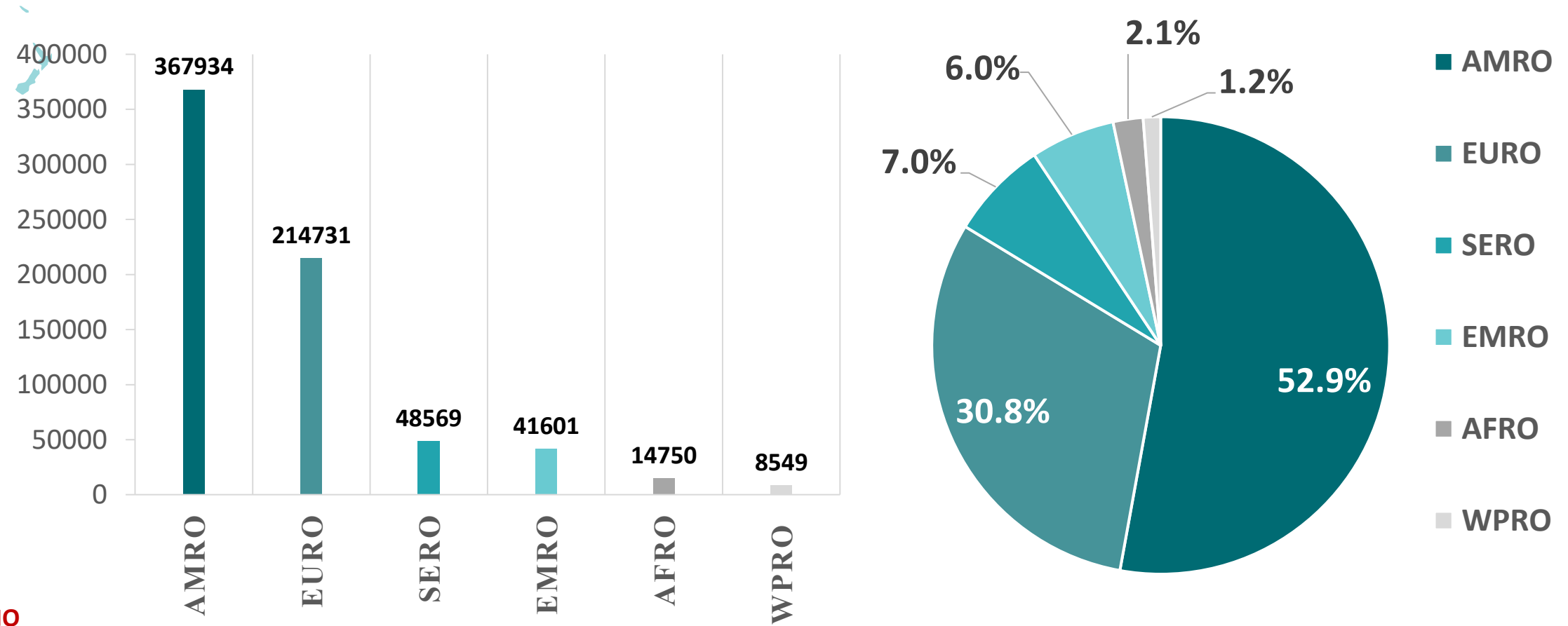
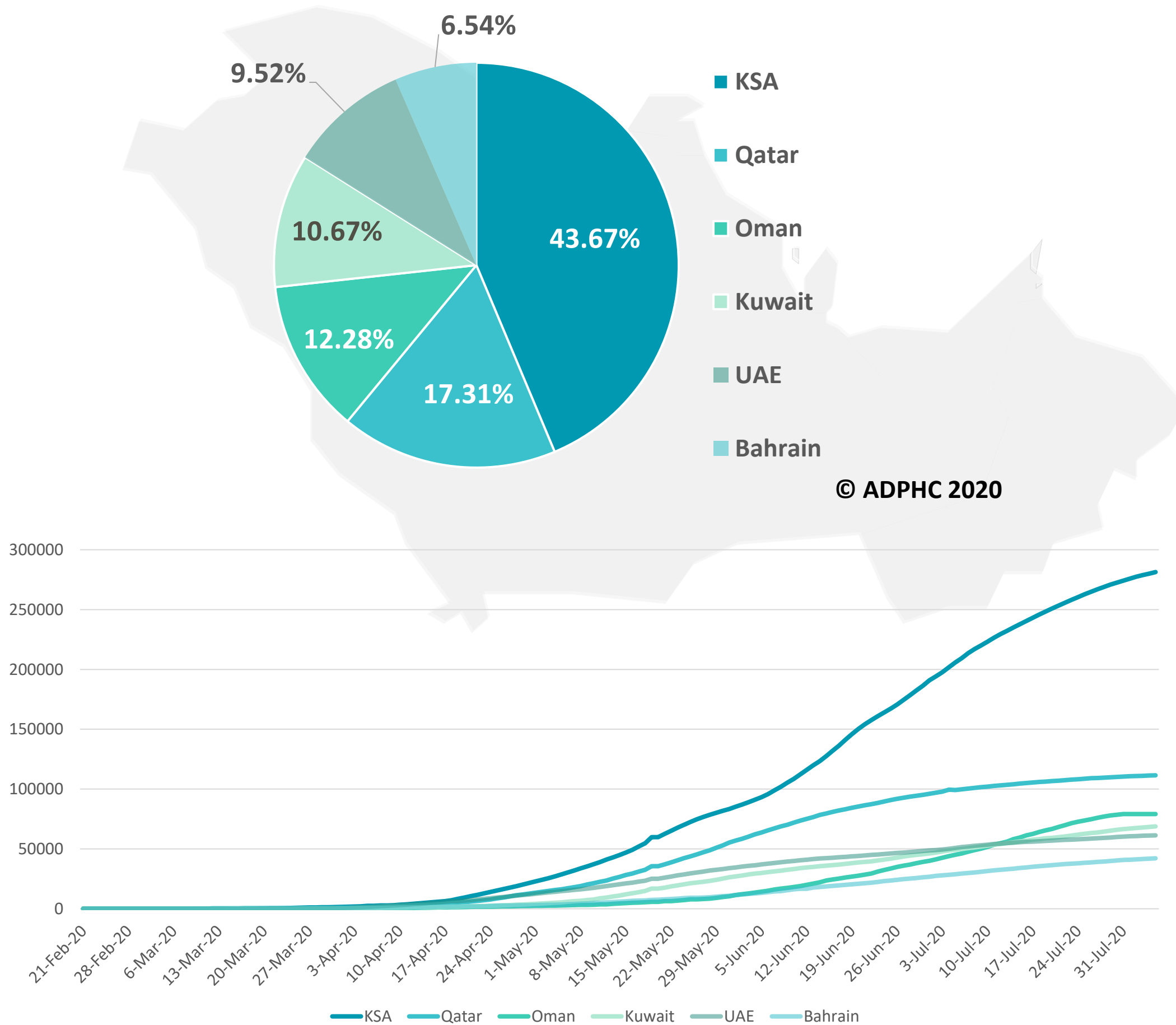
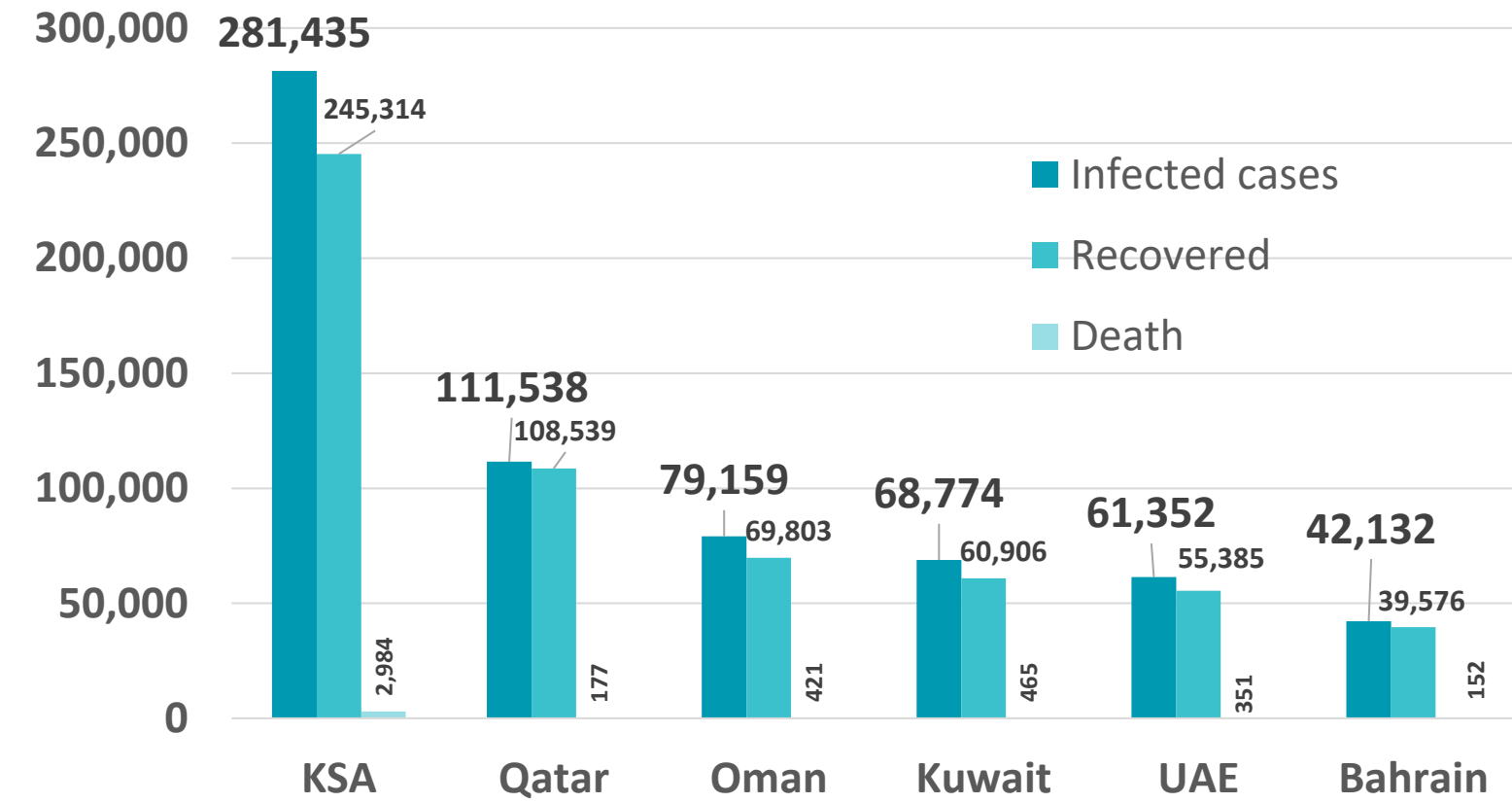


Figure 8: Comparative Analysis of the Distribution of COVID-19 Cases in GCC Countries

TOTAL NUMBER OF INFECTED CASES



TOTAL NUMBER OF INFECTED, RECOVERED AND DEATHS



DEATH PER MILLION

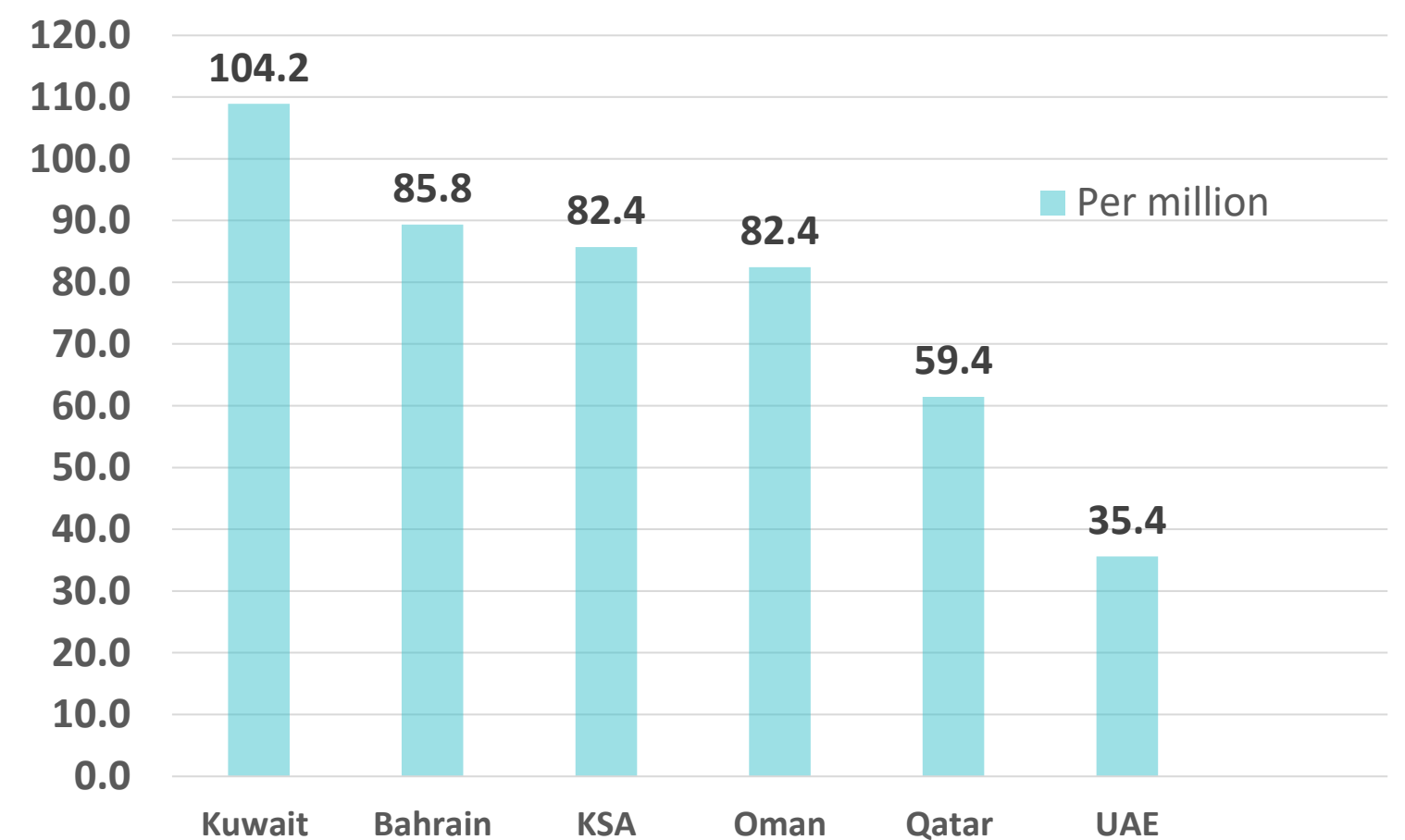


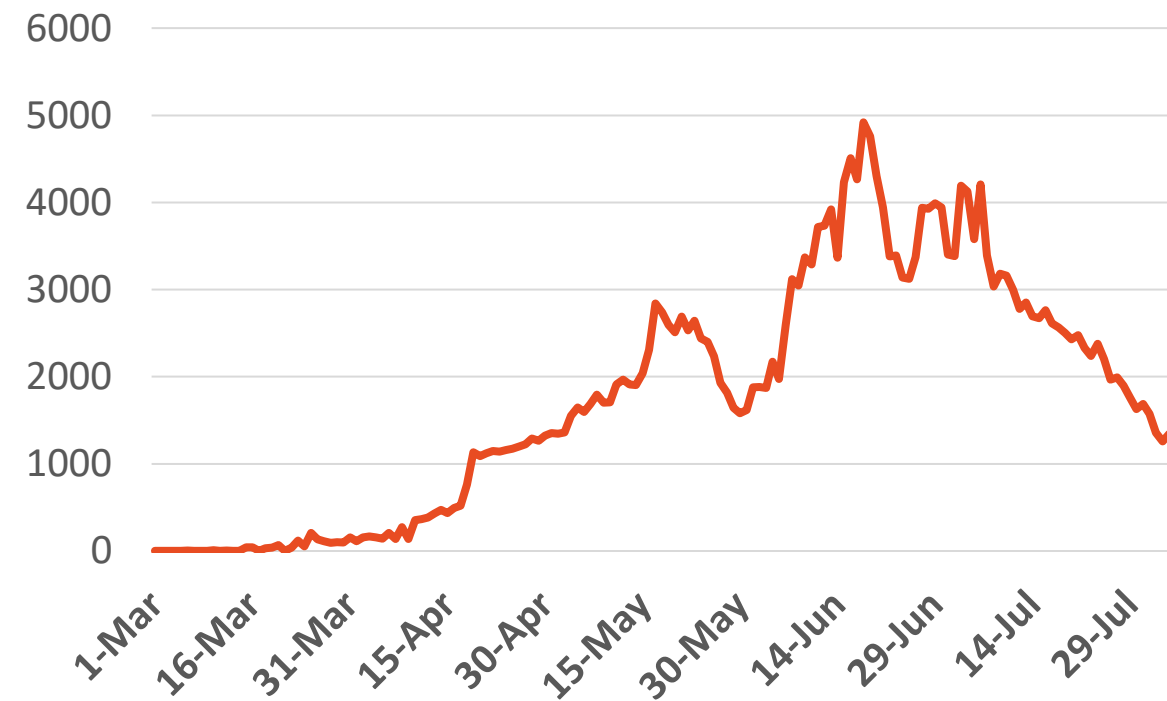
Figure 9: Comparative Analysis of the Distribution of COVID-19 New Cases in GCC Countries

UAE



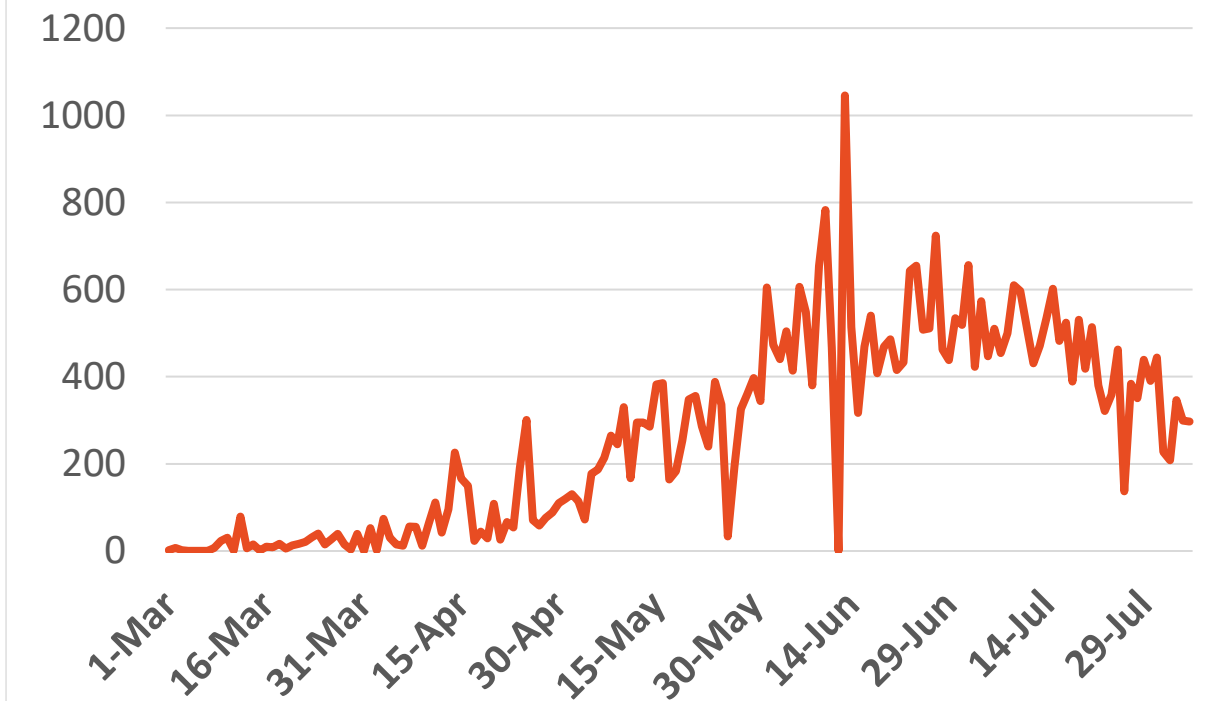
Source : National Emergency Crisis and Disaster Management Authority

KSA



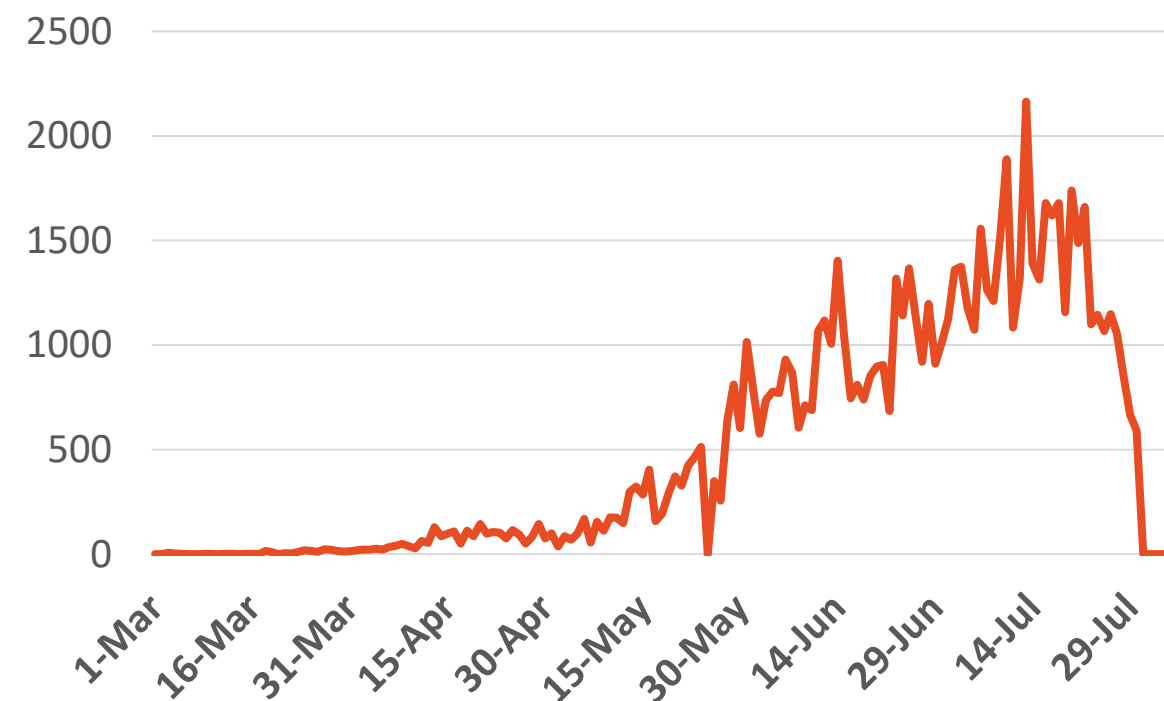
Source : KSA ministry of health

Bahrain



Source :WHO

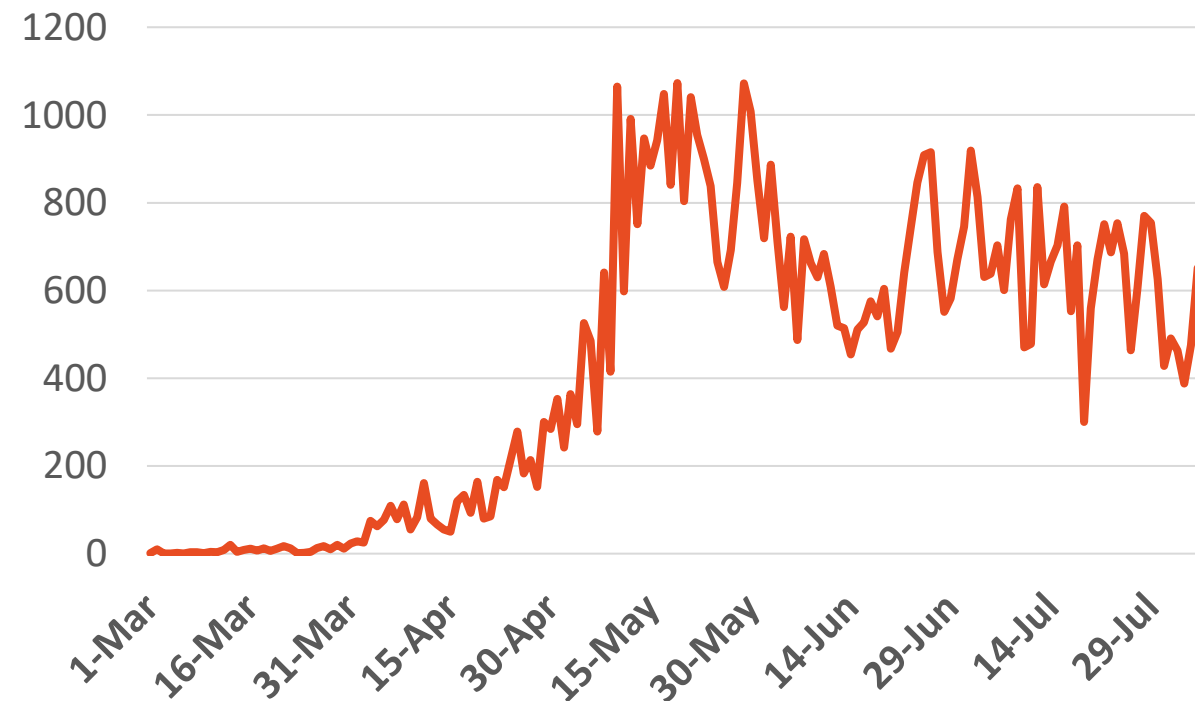
Oman



Source :Oman ministry of health

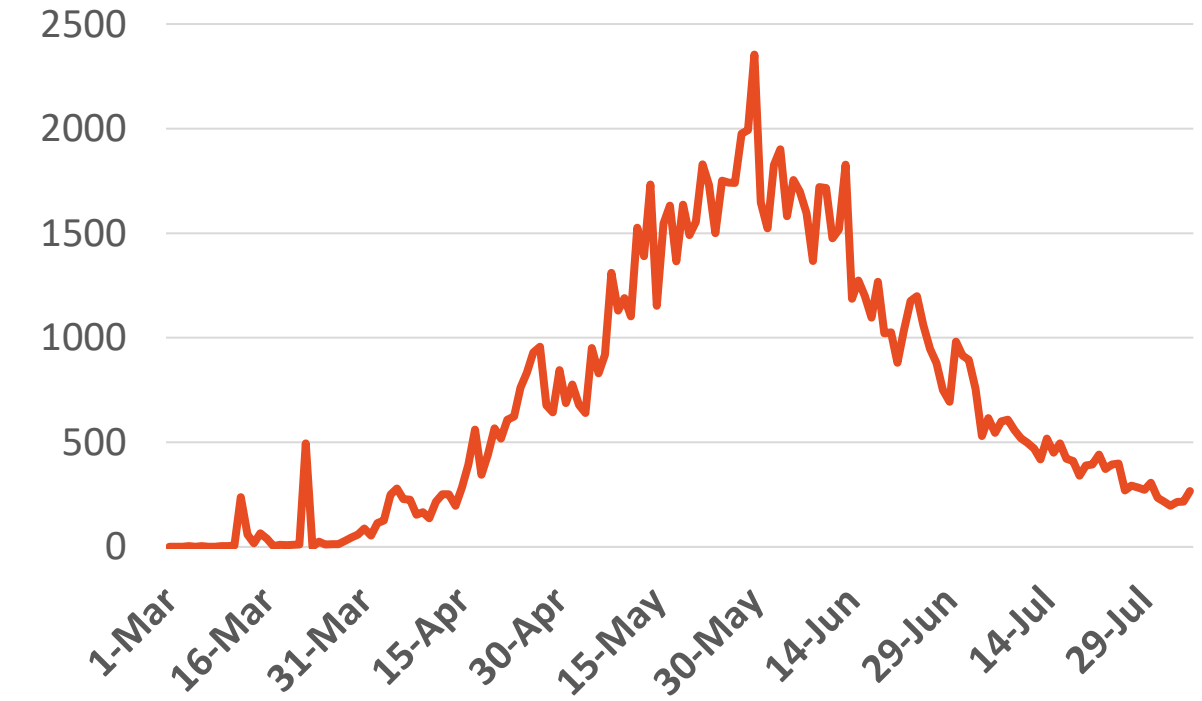
Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

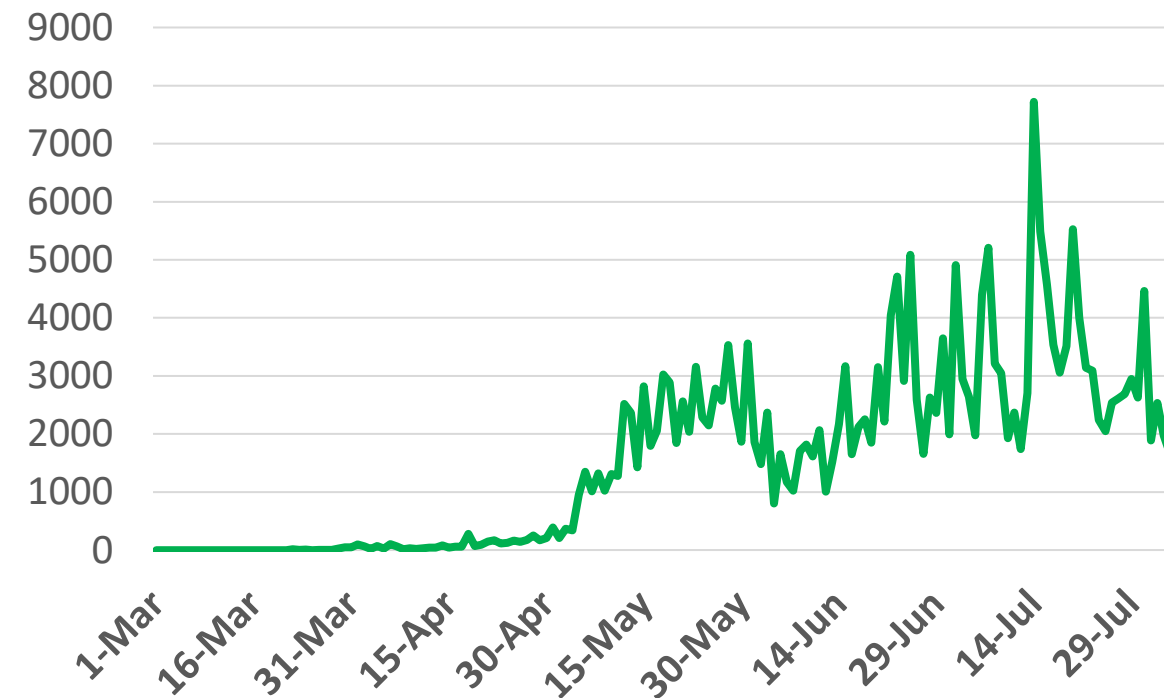
Figure 10: Comparative Analysis of the Distribution of COVID-19 Newly Recovered Cases in GCC Countries

UAE



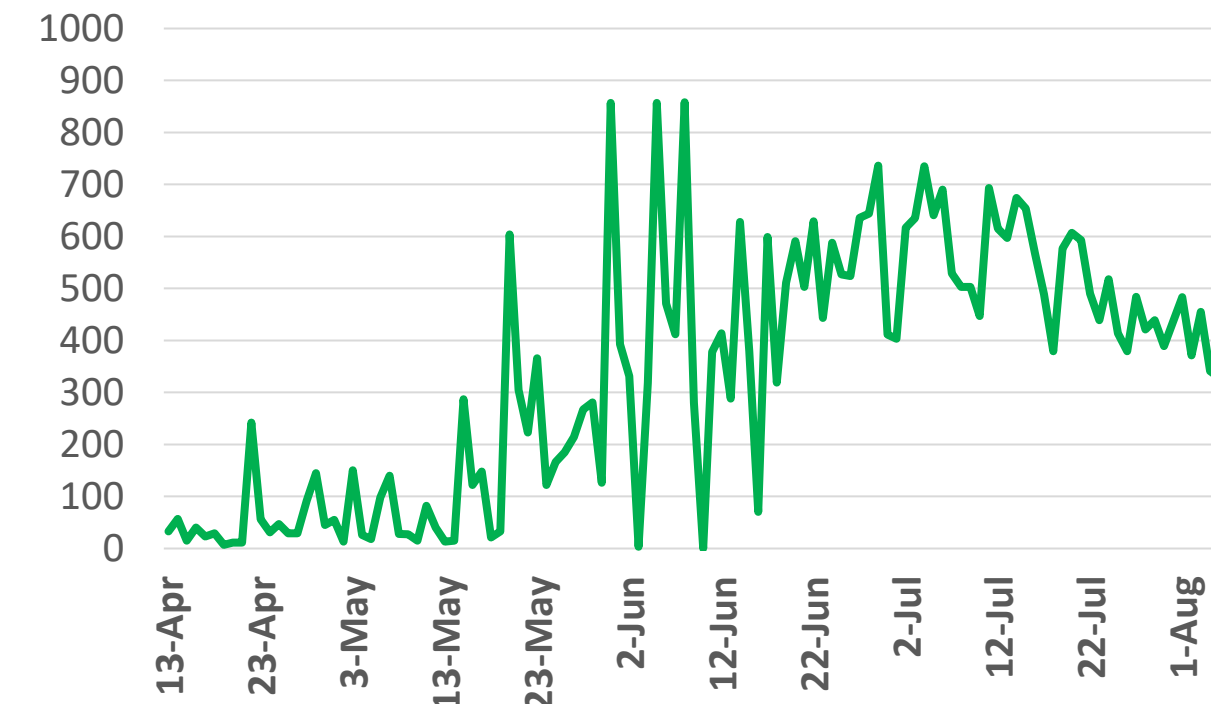
Source : National Emergency Crisis and Disaster Management Authority

KSA



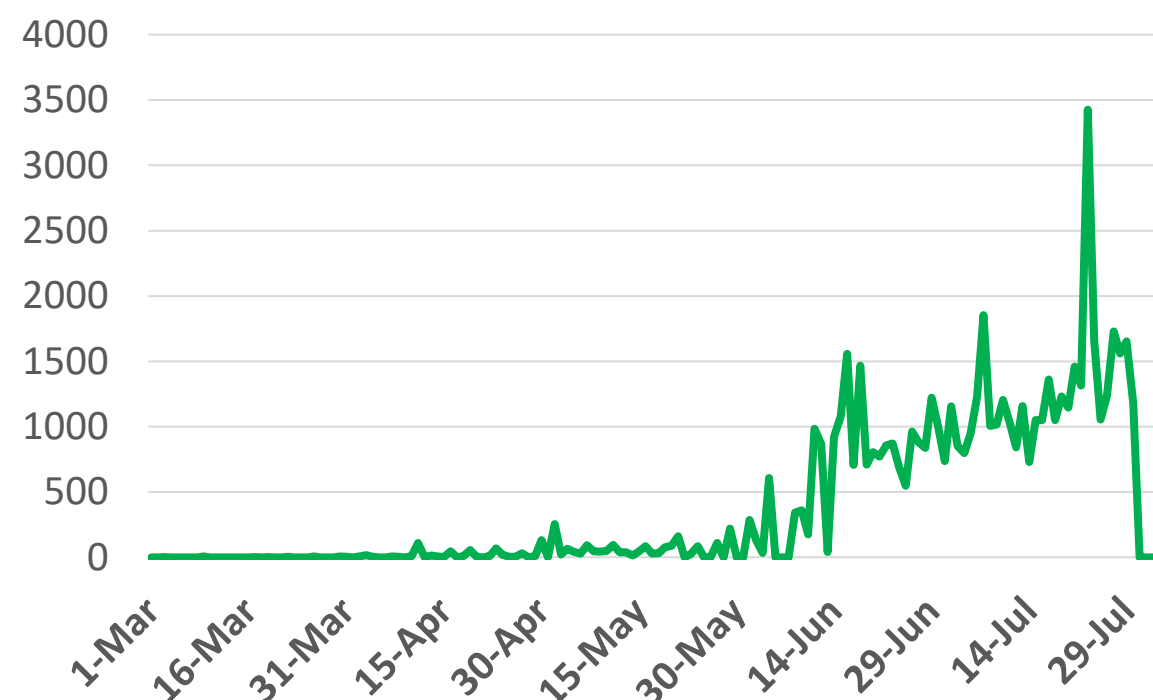
Source : KSA ministry of health

Bahrain



Source : GCCStat

Oman



Source : Oman ministry of health

Kuwait

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Source : Kuwait ministry of health

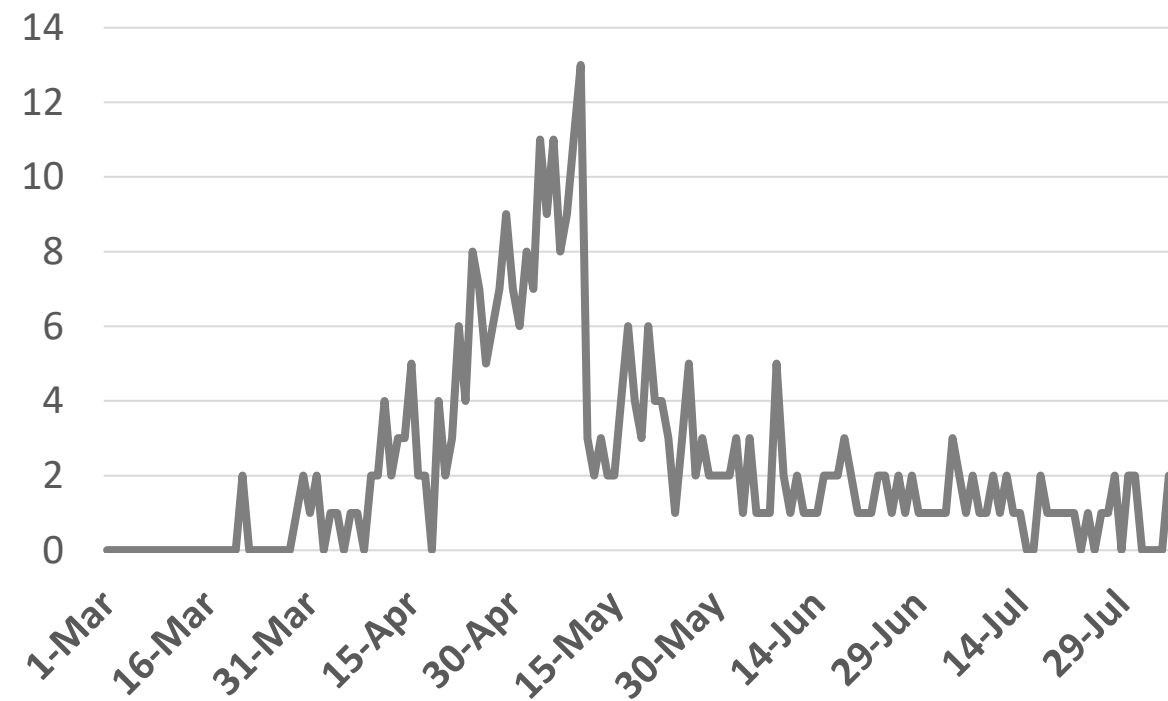
Qatar



Source : Qatar ministry of health

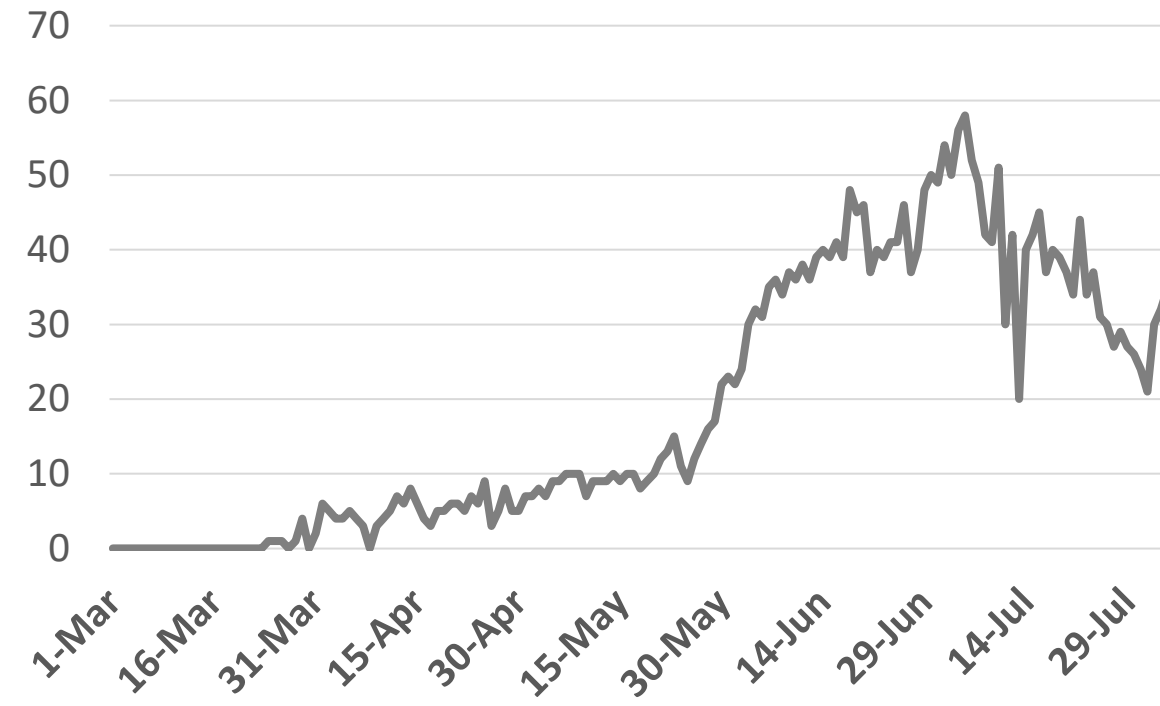
Figure 11: Comparative Analysis of the Distribution of COVID-19 New Death Cases in GCC Countries

UAE



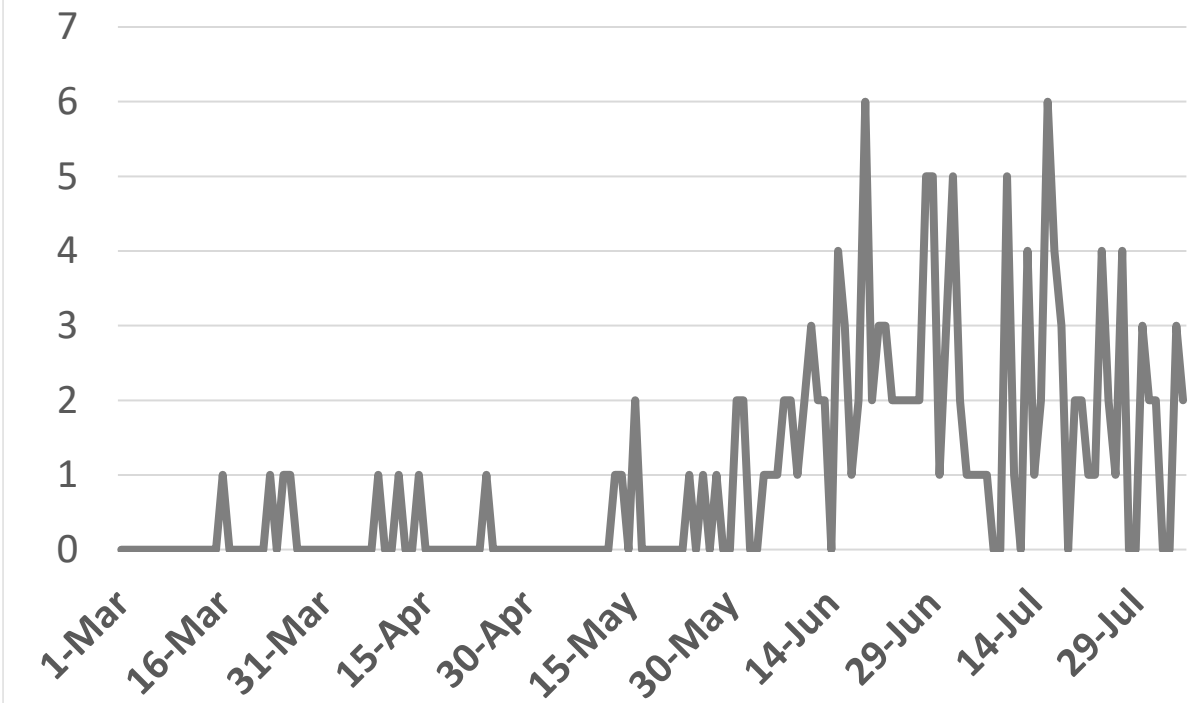
Source : National Emergency Crisis and Disaster Management Authority

KSA



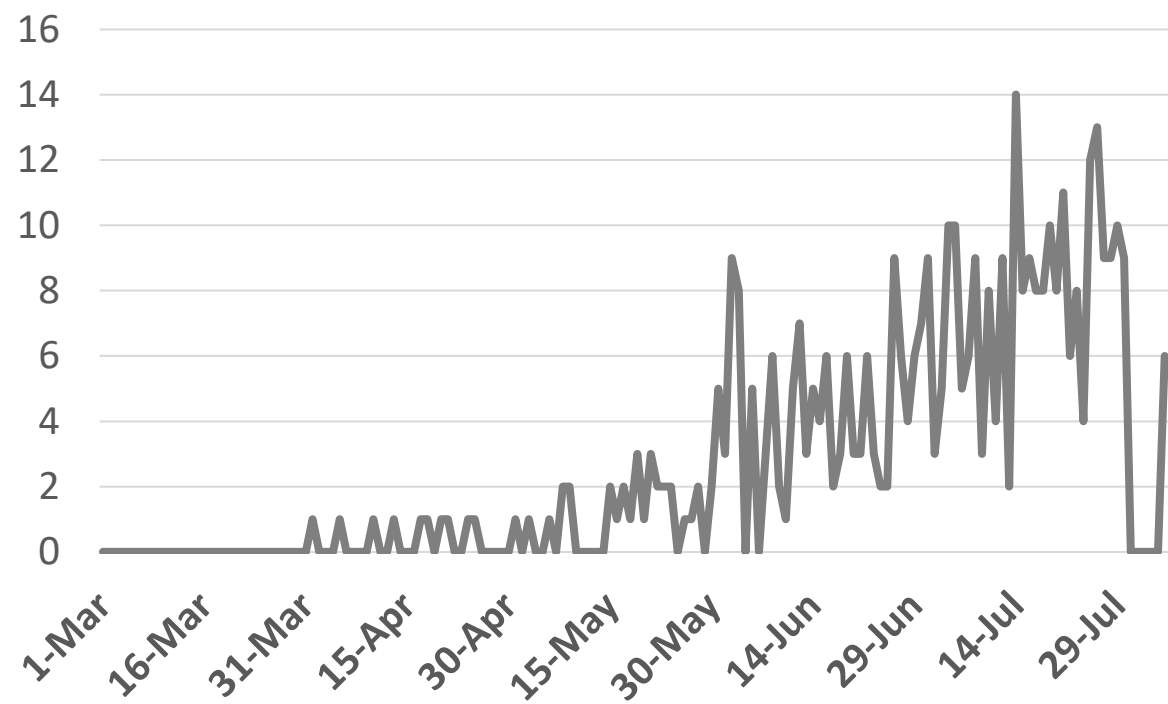
Source : KSA ministry of health

Bahrain



Source :WHO

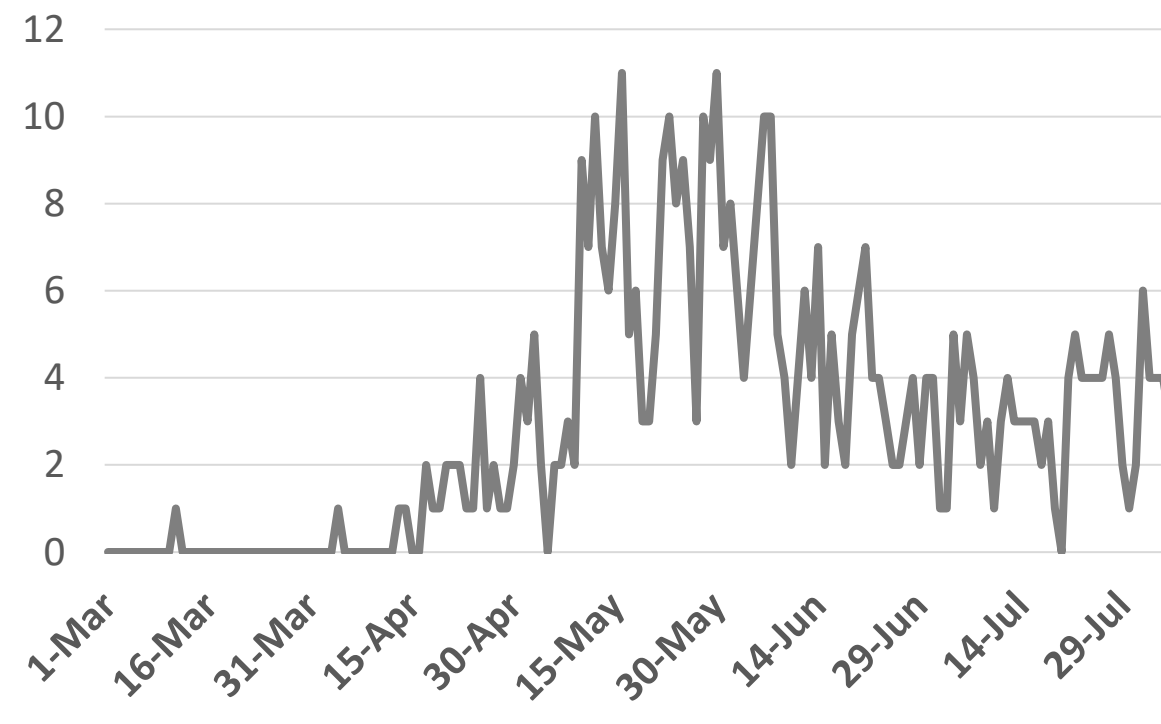
Oman



Source :Oman ministry of health

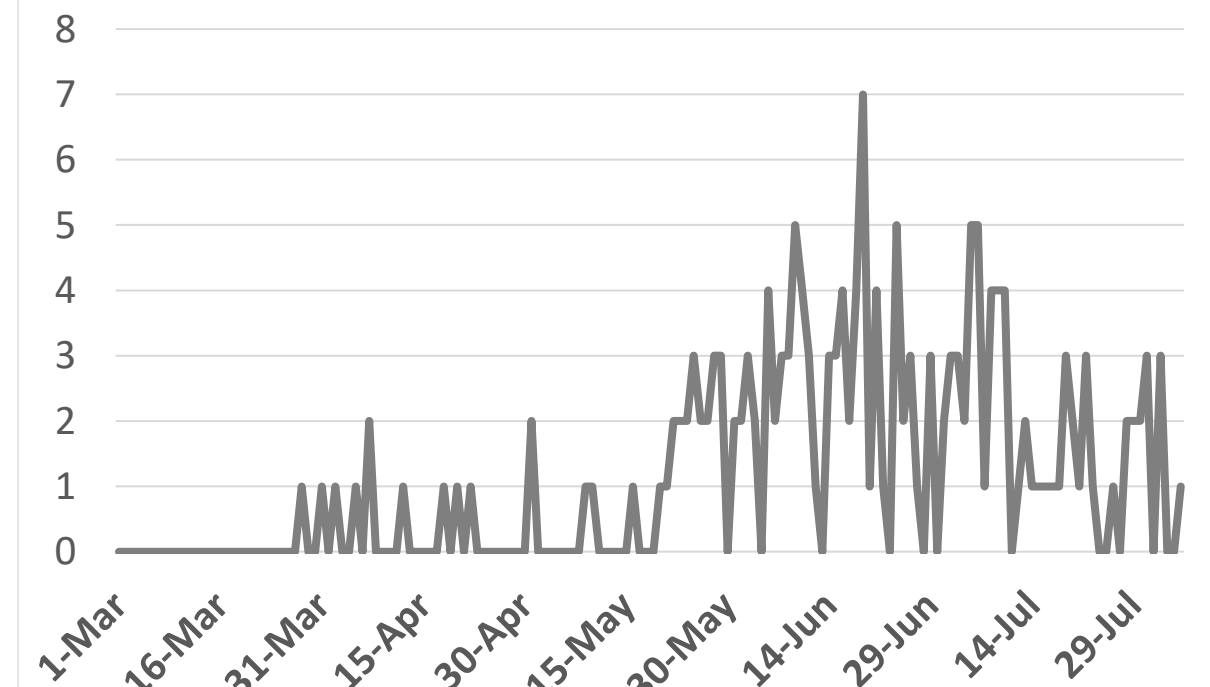
Kuwait

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Source : Kuwait ministry of health

Qatar



Source : Qatar ministry of health

Article 1

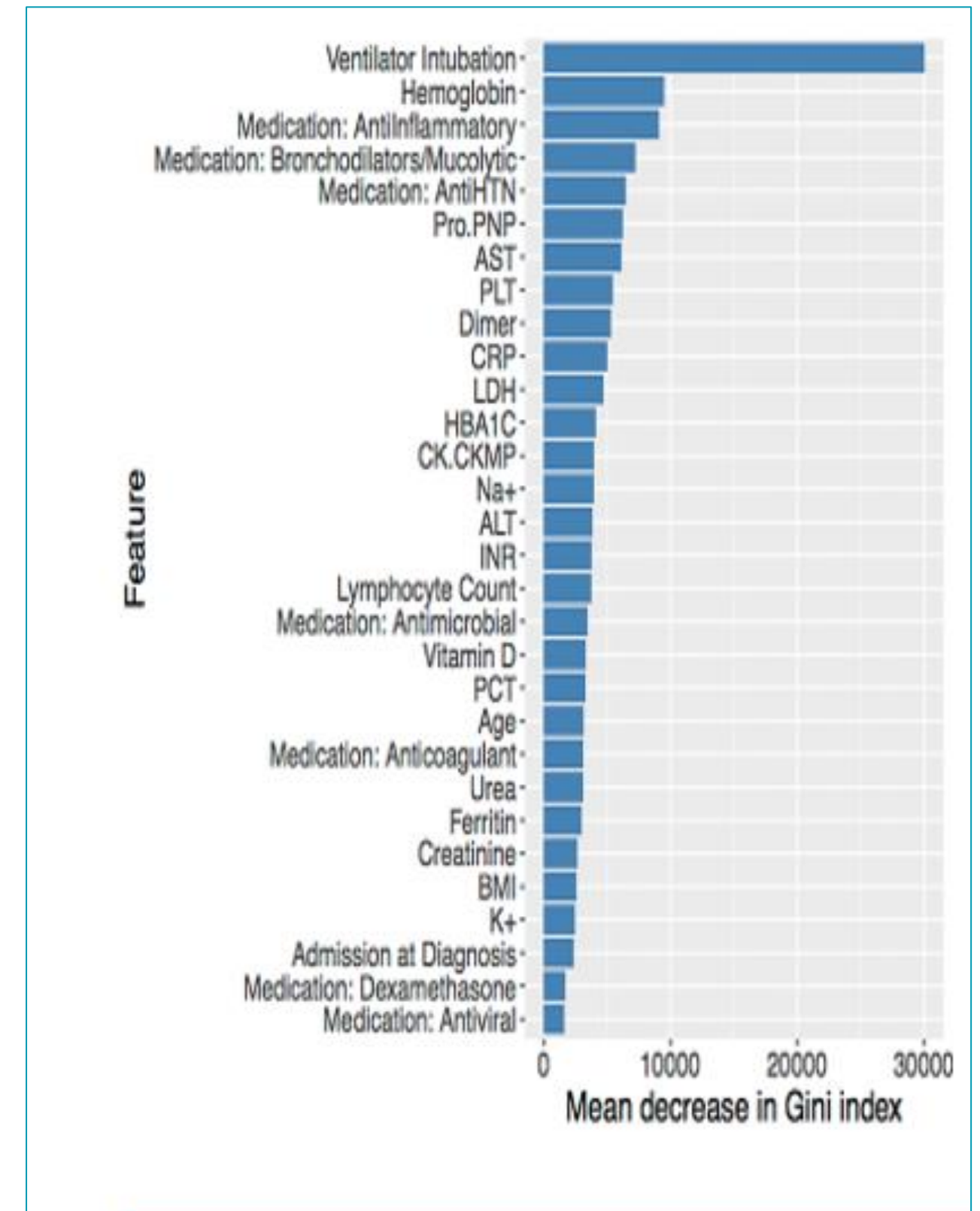
COVID-19 PREDICTIVE MODELING

Team

Bassam Mahboub, Mohammad Al Bataineh, Hussam Alshraideh, AbdulRahim Shamayleh , Laila Salameh, Rifat Hamoudi .
Collaborative work BETWEEN DHA and University Sharjah, American university of Sharjah.

A group of researchers from the UAE have analyzed clinical data of 2017 confirmed COVID-19 cases reported in Dubai Health Authority and developed (trained and tested) predictive models to accurately predict patient's length of hospital stay and risk of death with excellent performance, at a coefficient of determination R2 of 49.8% and a mean absolute deviation (MAD) of 3.9 days and overall prediction accuracy of 96% respectively.

The screenshot shows a web application titled "DHA: COVID-19 Severity Prediction". It features a sidebar with the Dubai Health Authority logo and a "Predict Index" button. The main content area is divided into three sections: "1. Health Information", "2. Medications", and "3. Lab Test Results". Each section contains various input fields and dropdown menus for patient data.



<https://haalshraideh.shinyapps.io/DHA-AUS>





Article 2 Reopening Primary Schools during the Pandemic

Published

29 July 2020 [THE NEJM](#)

Why In-Person Schooling Matters: Schools provide numerous additional in-person benefits such as social welfare services, access to the full nutritional benefits, physical, mental health, and therapeutic services and children miss such things at home.

- Some school districts are developing hybrid learning plans where they would bring alternating groups of students back into school under conditions of strict social distancing. Millions of children will remain excluded from learning on the days when they're assigned to virtual school, owing to digital access challenges, developmental inappropriateness, or lack of real-time adult support. These challenges are important for educators who are parents themselves.

Clinical and Epidemiologic Perspectives: From a clinical standpoint, most children 1 to 18 years old experience mild or no illness from COVID-19 and are much less likely than adults to face severe consequences.

- A small number of children worldwide have been hospitalized with multisystem inflammatory syndrome in children (MIS-C) after SARS-CoV-2 infection.
- Age-related differences in infectivity are less clear as findings are weak, and some of these relevant studies were conducted when schools were closed.





Continued

Evidence from the Field: COVID-19 outbreaks in high schools in France, Israel, and New Zealand did not extend to nearby elementary schools, suggesting susceptibility and infectiousness are lower among younger children.

- Primary schools in the Netherlands returned to full-day teaching in early June. Most children and educators have returned, and the case rate has far remained flat.
- Case numbers have continued to decrease in Denmark, under strict social distancing rules.
- Opening schools in Finland, Belgium, Austria, Taiwan, or Singapore have not led to increased case counts as all have taken substantial extra precautions and are slowly lifting restrictions on activities and group size.
- Most locations (except Israel) whose schools are open had already achieved low community transmission rates and have remained focused on maintaining population-level infection control.
- Because of low community transmission rates Taiwan successfully kept schools open throughout the pandemic and Netherlands has been successful with no masking or social distancing among children.

Implications for U.S. Policy: The safest way to open schools fully is to reduce community transmission while ramping up testing, maintaining social distance, especially for adults and engaging in other measures to reduce, adult-to-adult transmission, like wearing PPE, closing the building to all non-staff adults & digital staff meeting.

- Remote teaching and other school services should be available to all families who may choose to keep their children home.
- Schools' social and physical infrastructure will also need to be modified, and crowded schools may benefit from spreading out to other unused local buildings.

Conclusions: Reopening primary schools is not just a scientific and technocratic question, but also an emotional and moral one. School closures have also brought social, economic, and racial injustice into sharp relief, with historically marginalized children and families.





Article 3 Finding a Path to Reopen Schools During COVID-19 Pandemic

Published

3 August 2020 [THE LANCET](#)

- Many studies demonstrated the crucial role that children played in the spread of H1N1 influenza pandemic, so naturally, decision-makers decided to close schools to prevent transmission during COVID-19 pandemic.
- School closure is likely to result in damage to children's educational, psychological and social development as well as lost productivity in adults who have childcare responsibilities.
- The lack of severe disease of COVID-19 on children changes the benefit-to-cost ratio associated with closing schools.
- One study in [Australia by Kirstine Macartney et al](#) studied children transmission during the early epidemic phase where educational facilities were formally opened and found very low rates of infection among the participants which align to findings from a similar study in [Ireland](#). No secondary cases were documented as arising from the pediatric cases. [South Korea](#), suggests that the rates of COVID-19 among household contacts of cases was lowest when index case was younger than 10 years old and highest when it was aged 10-19 years.
- [J. Panovska- Griffiths et.al.](#) did another modelling study that focused on the easing of restrictions and the reopening of schools. Using UK specific data they assume that reopening schools even partially led to the second wave of infections unless testing is scaled up significantly. This study, however, did not clarify if the increase of cases in the model is due to the increased contact between children or increased contact between adults.
- Both studies give options for keeping schools open and show clear adequate contact tracing and testing.
- Many questions about aged- related differences and transmission between children and adults remain.
- In conclusion, many questions remain, including whether there **are age-related differences in susceptibility** and the likelihood of transmission between children and adolescents. We urgently need large-scale research programs to carefully monitor the impact of schools reopening, like what currently the Public Health England's is doing.

