

SCIENTIFIC RESEARCH MONITORING ON COVID-19

2 JULY 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>



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.

Scientific Research

- **Virology** : a surveillance study on the pigs in china done during the period of 2011 to 2018 found that there is a strain of swine flue called G4 have high pandemic potential and need to be monitored. (page 17)
- **Public Health Response** : Testing early, testing late: four countries' approaches to COVID-19 testing compared. (page 18)
- **Diagnosis** : Antibody tests for identification of current and past infection with SARS-CoV-2) a Cochrane review (page 19).
- **Special Updates** on the WHO COVID19 research forum 1st July 2020. (20)



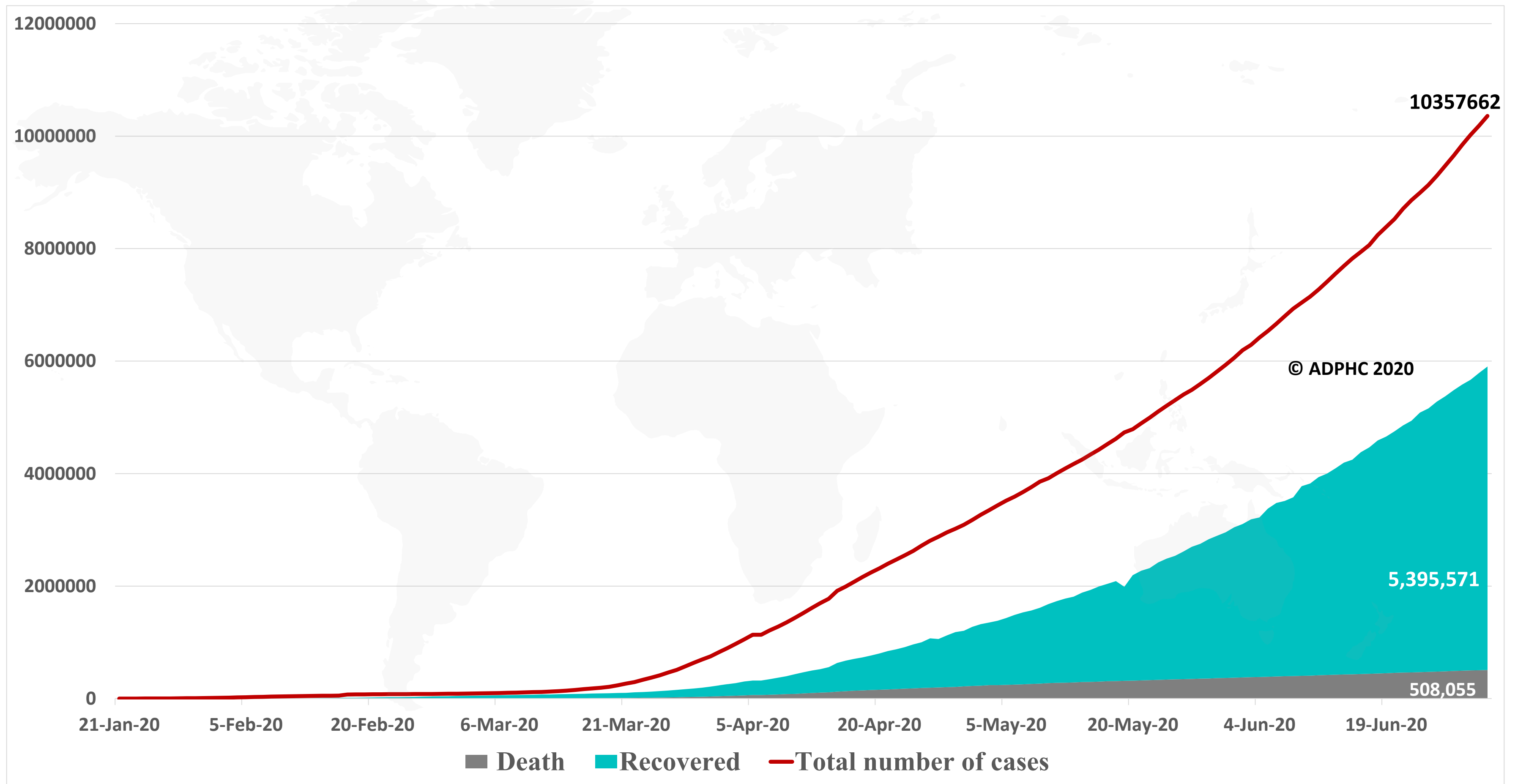


- It has never been clearer that communication is an important public health intervention that contributes to controlling pandemics. The WHO Regional Office for Europe discusses this and the risks of an “infodemic” – an overabundance of information, some of which can be misleading or even harmful.
- WHO launched the first Infodemiology conference on 29 June, which includes talks with experts on how the infodemic affects the world and reflections on how it can be managed.
- Cambodia has been responding to a measles outbreak at the same time as the COVID-19 outbreak. WHO has supported efforts for routine immunization in Cambodia at health care facilities, and in the community through outreach teams.
- WHO has published an update to the scientific brief on smoking and COVID-19, which assesses the available evidence on the risk of smokers being infected by the virus, severity of disease, and deaths among hospitalized COVID-19 patients who smoke. The conclusion remains that smoking appears associated with increased severity of disease and death in hospitalized COVID-19 patients.





Figure 1: Total number of infected, recovered, and death cases (January 21st to July 1, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

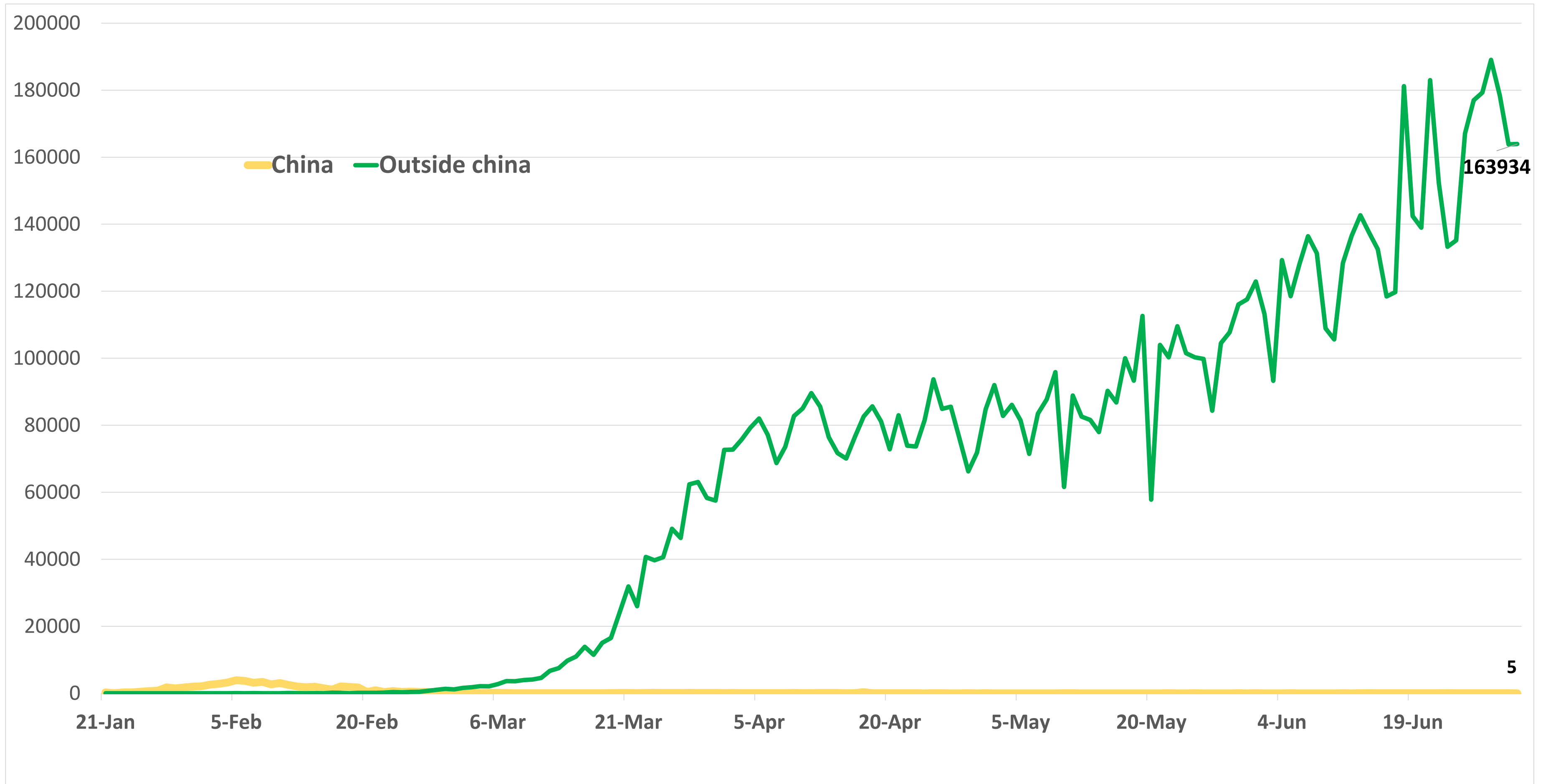
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Figure 2: Daily new infected COVID-19 cases reported between (January 21 to July 1, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

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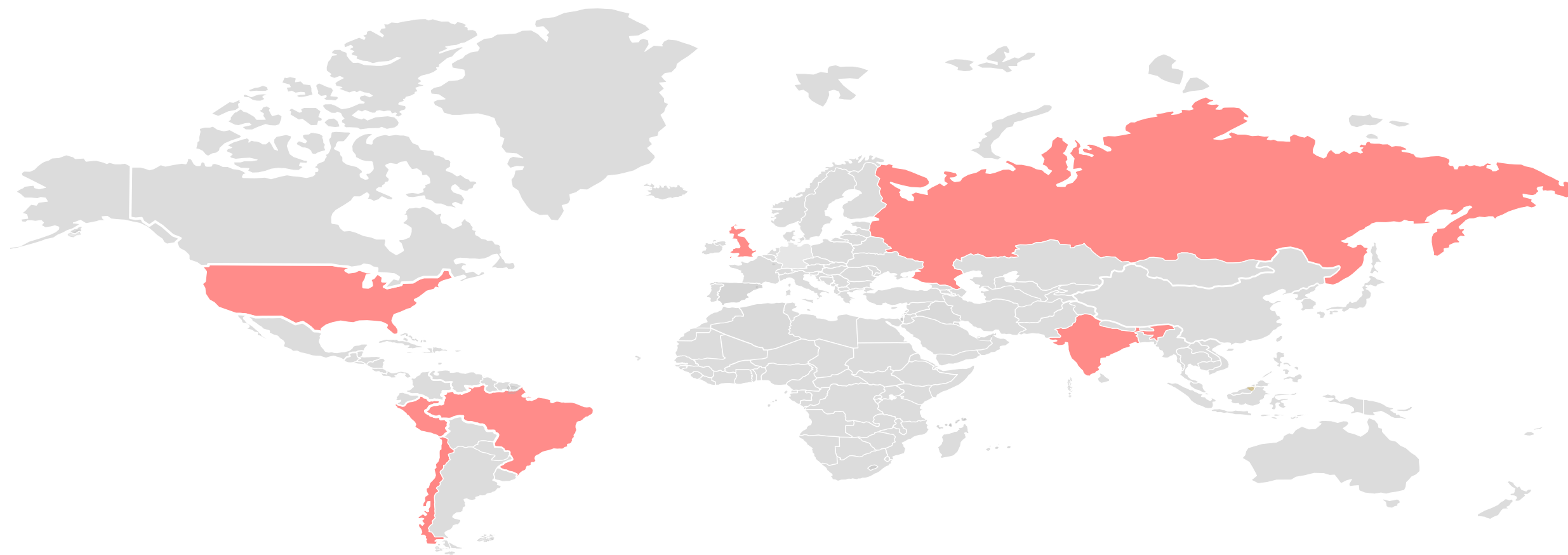
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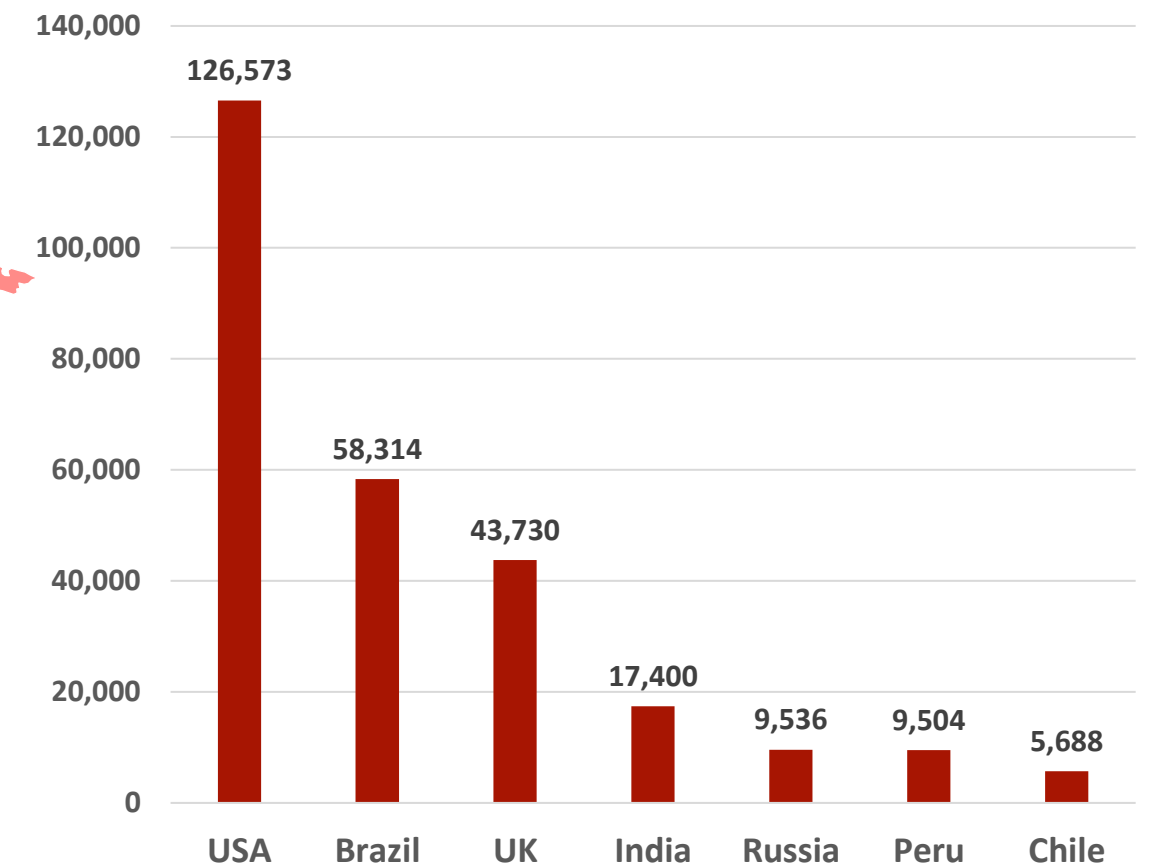




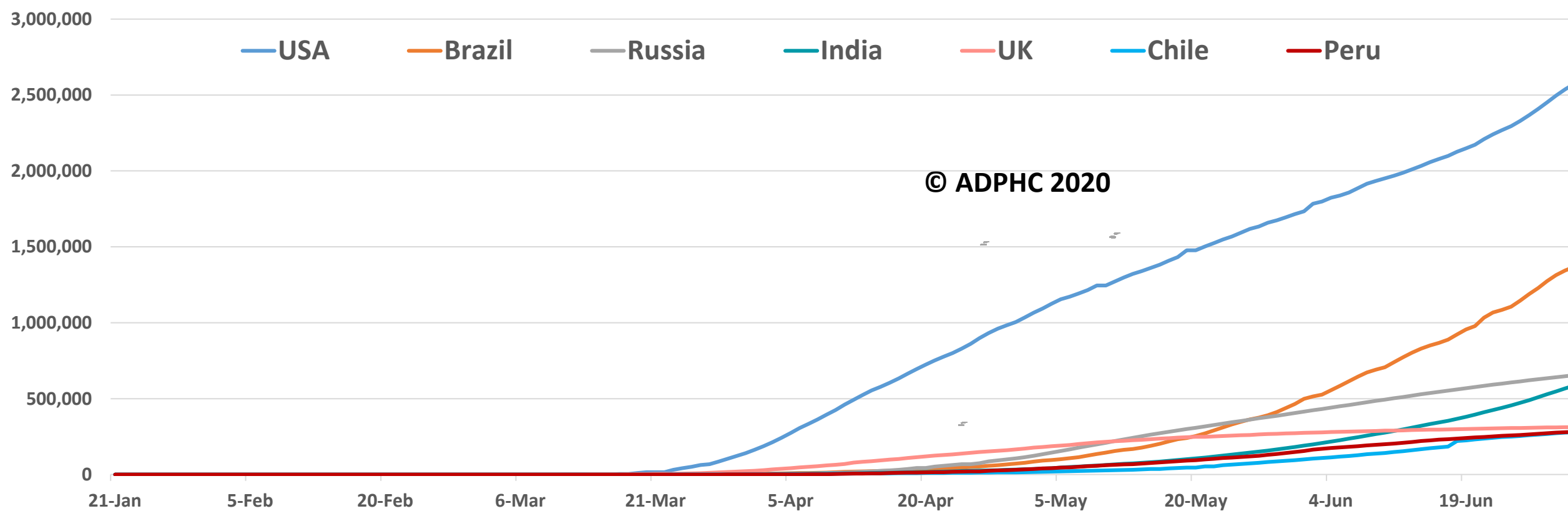
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to July 1, 2020).



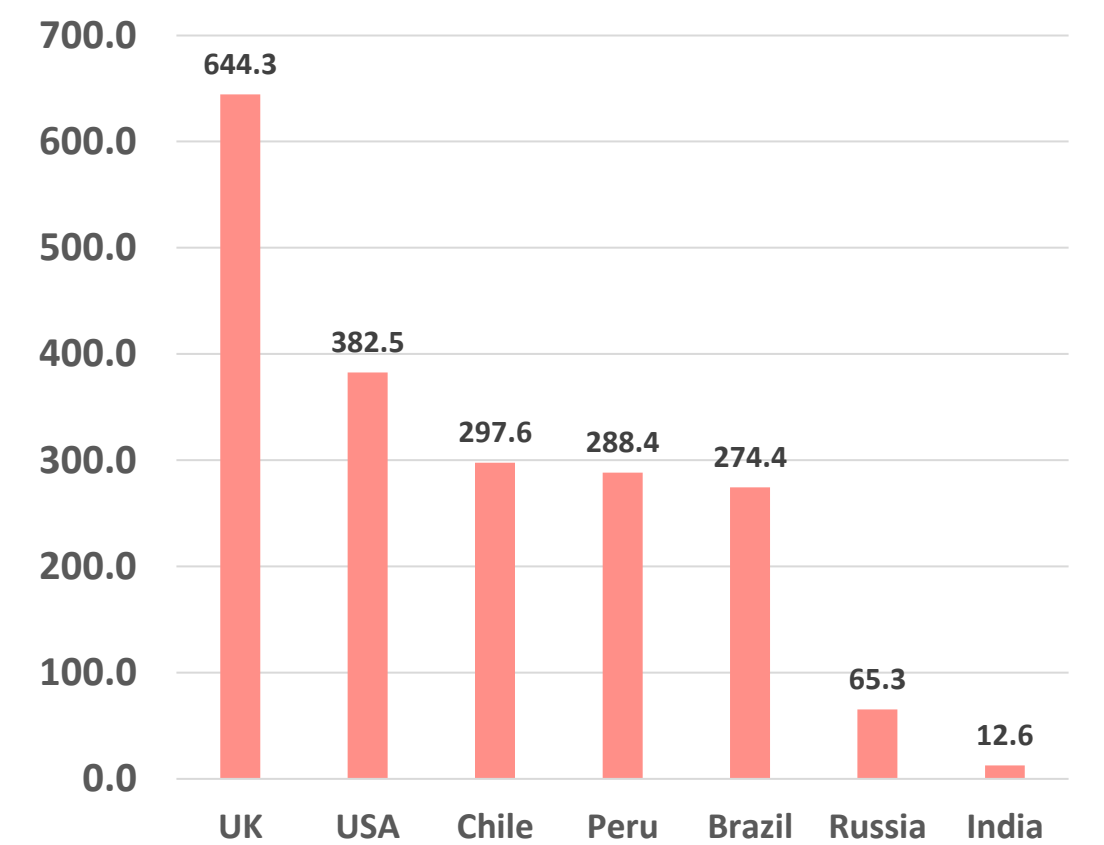
TOTAL DEATHS



TOTAL INFECTED CASES



DEATHS PER MILLION



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

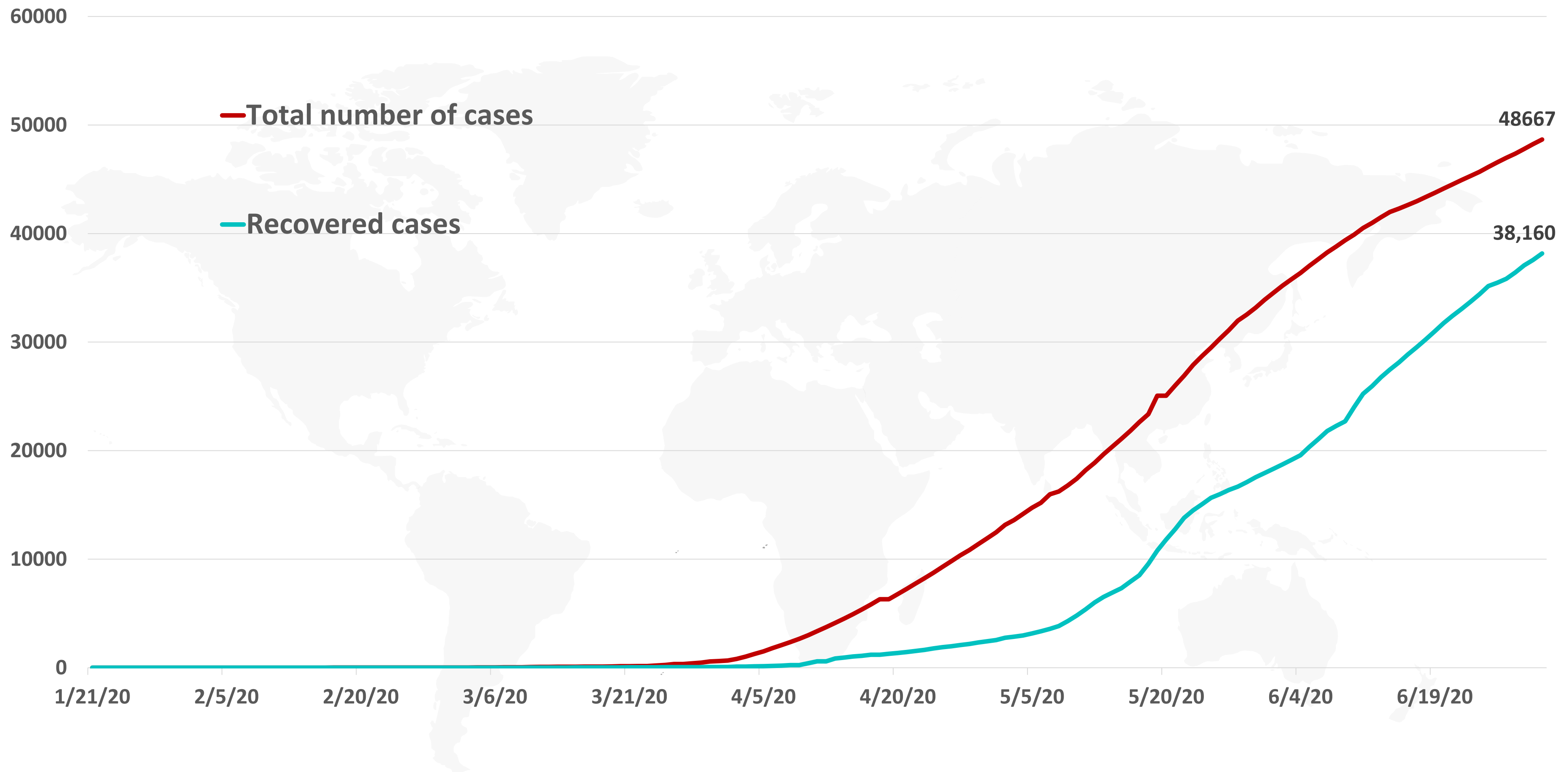
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Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

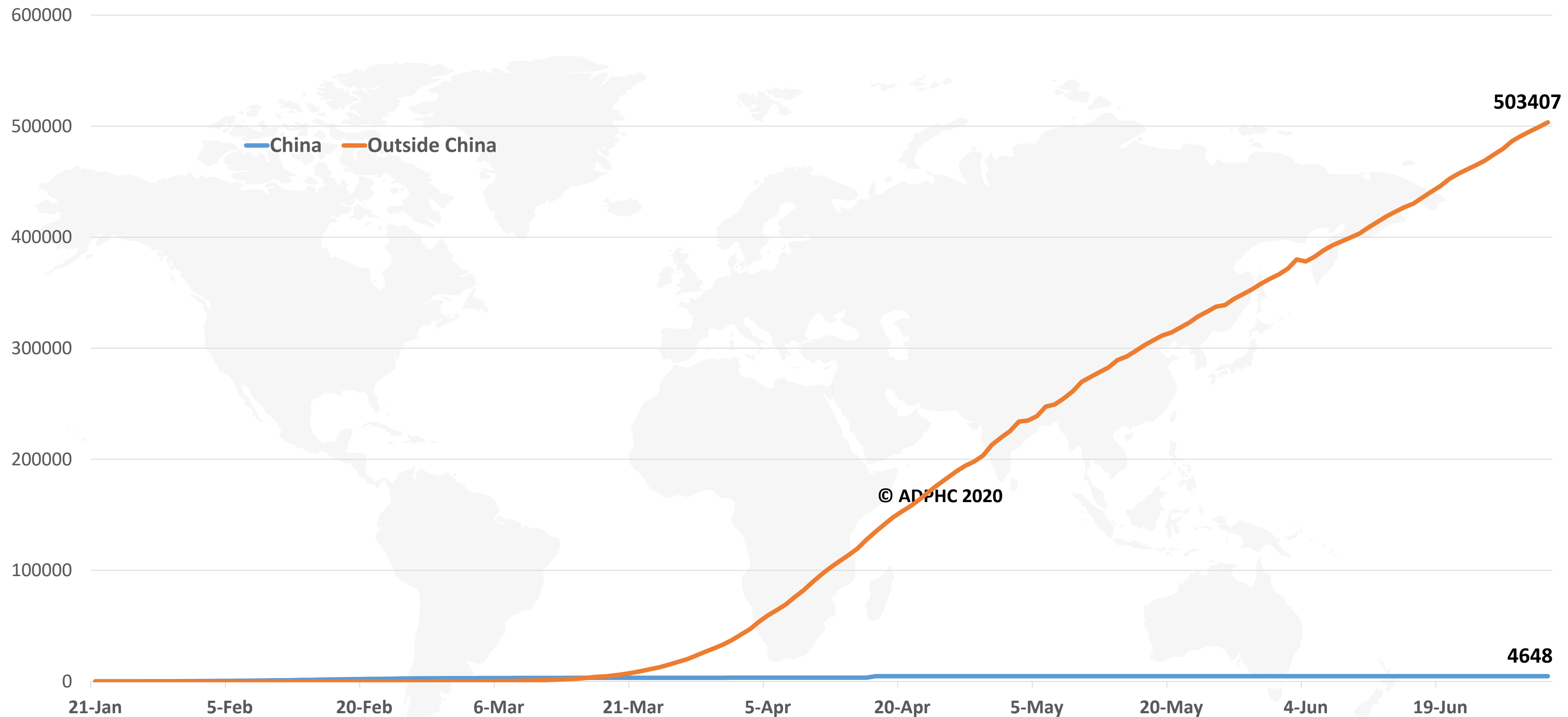
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Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to July 1, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

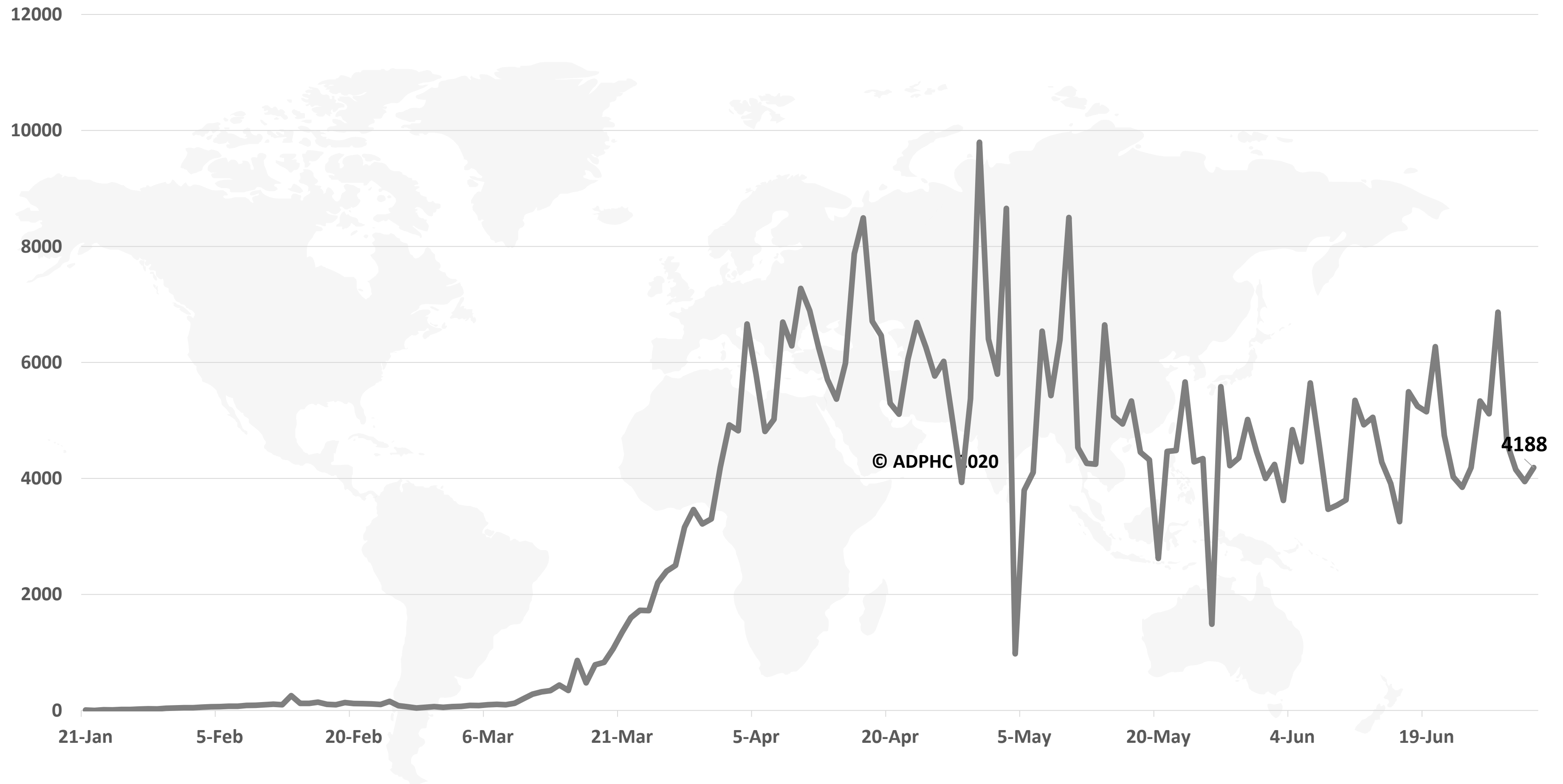
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Figure 6: Global daily new deaths due to COVID-19 (January 22 to July 1, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

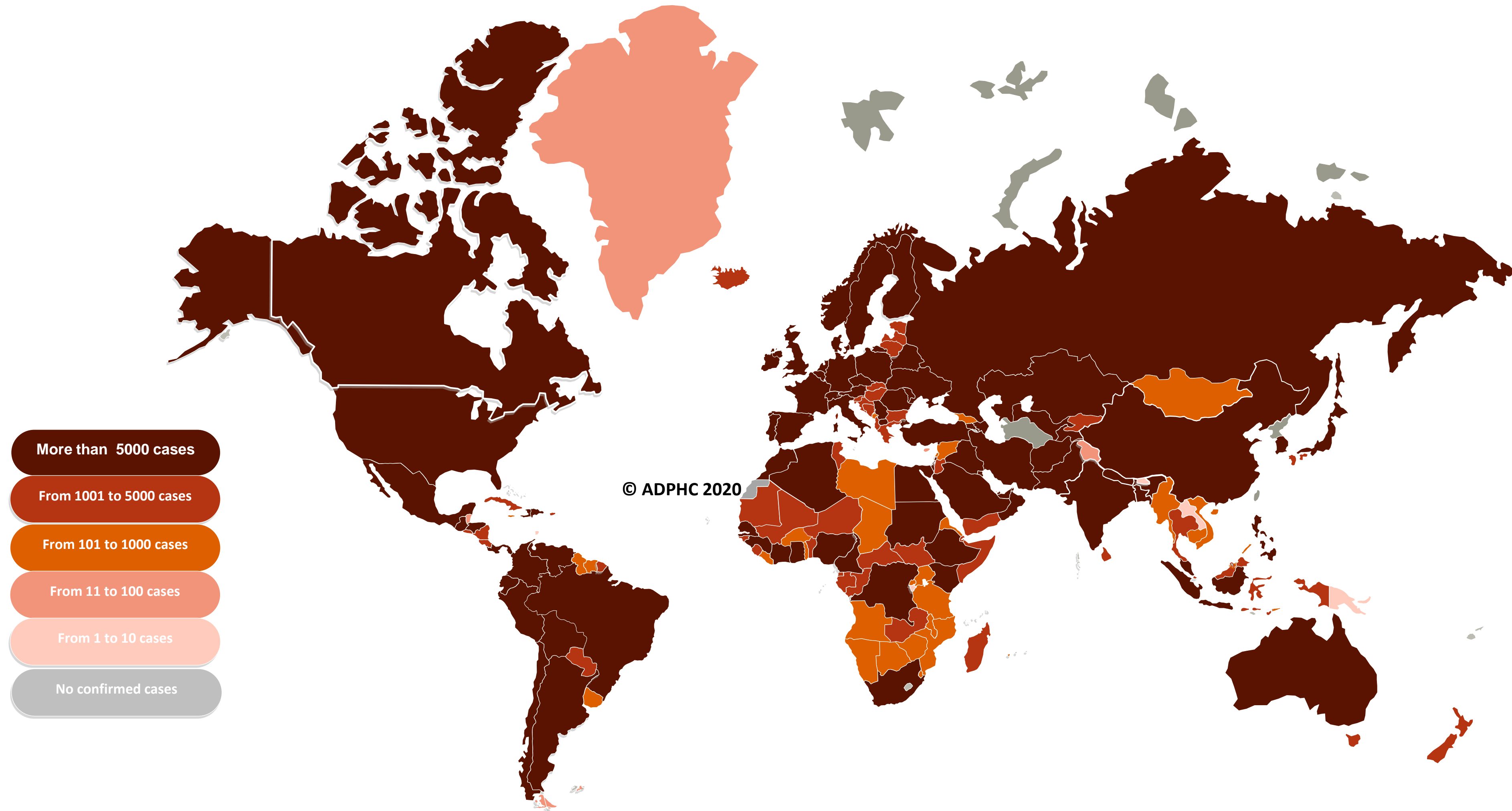
Data resources: [WHO](https://www.who.int/)

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Figure 7a : Global distribution of COVID-19 cases (July 1, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

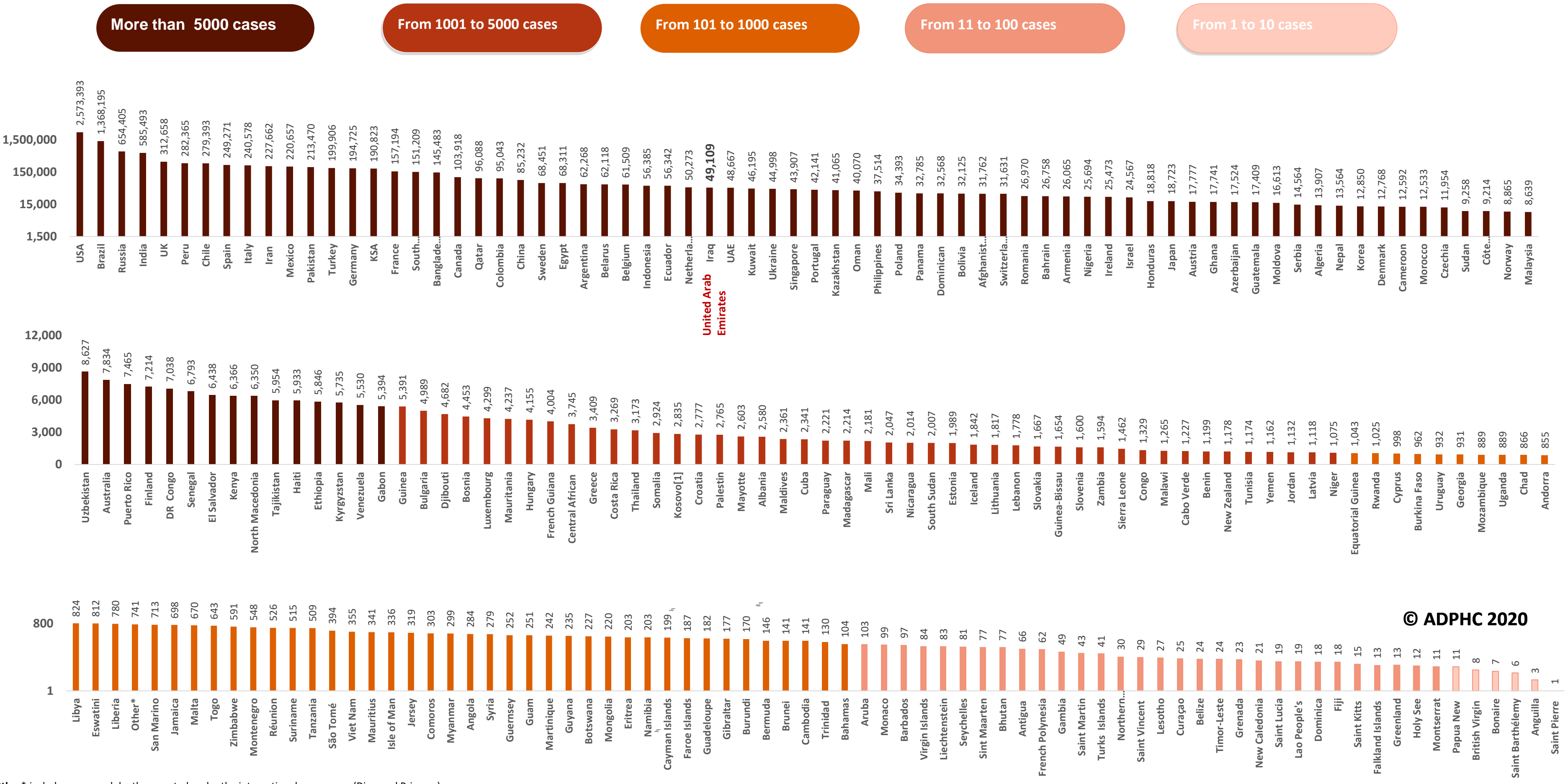
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Figure 7B: Bar chart illustrate the global distribution of COVID19 cases July 1, 2020)



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



Bar chart published by Abu Dhabi Public Health Center 2020.

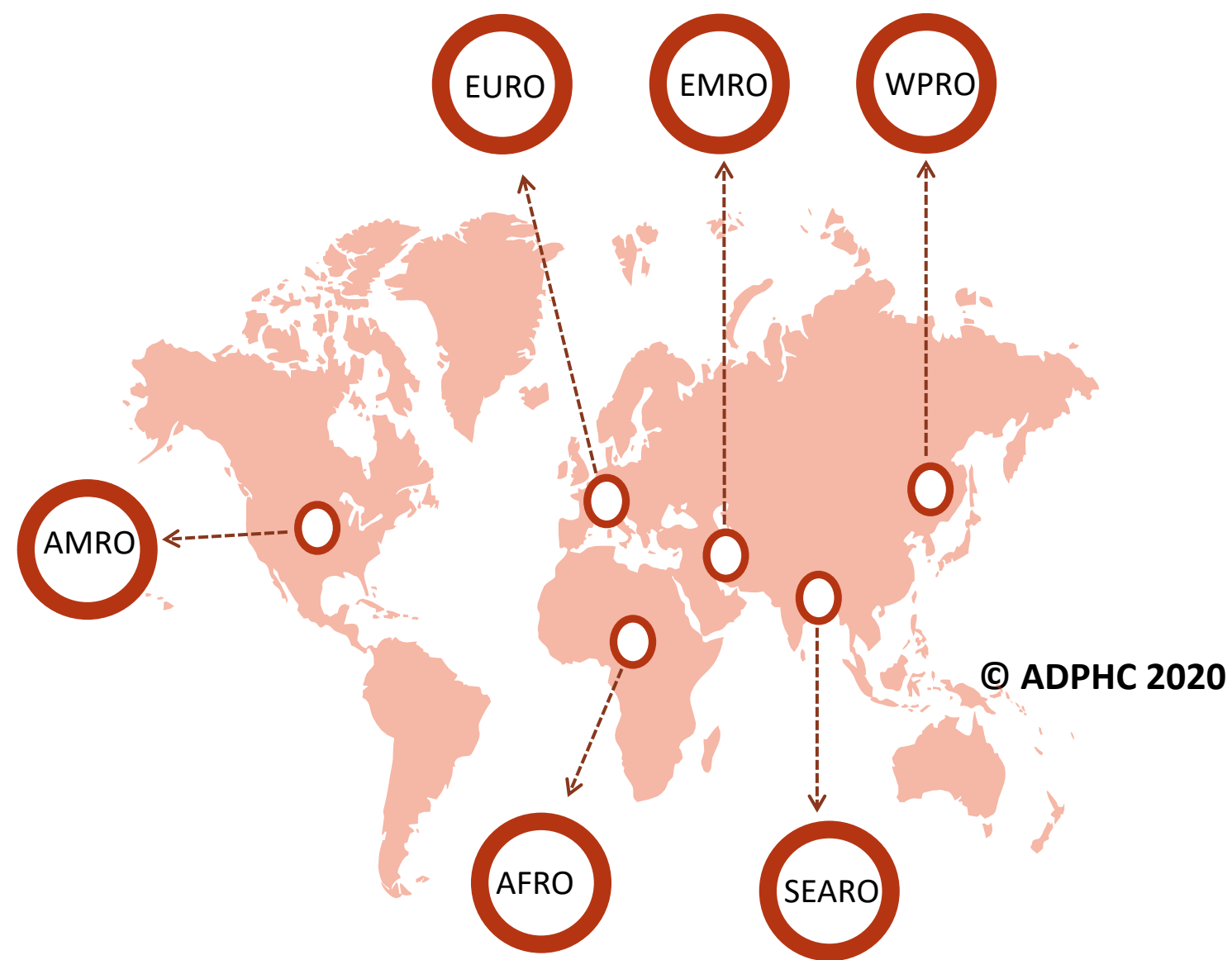
Data resources: [WHO](https://www.who.int/)

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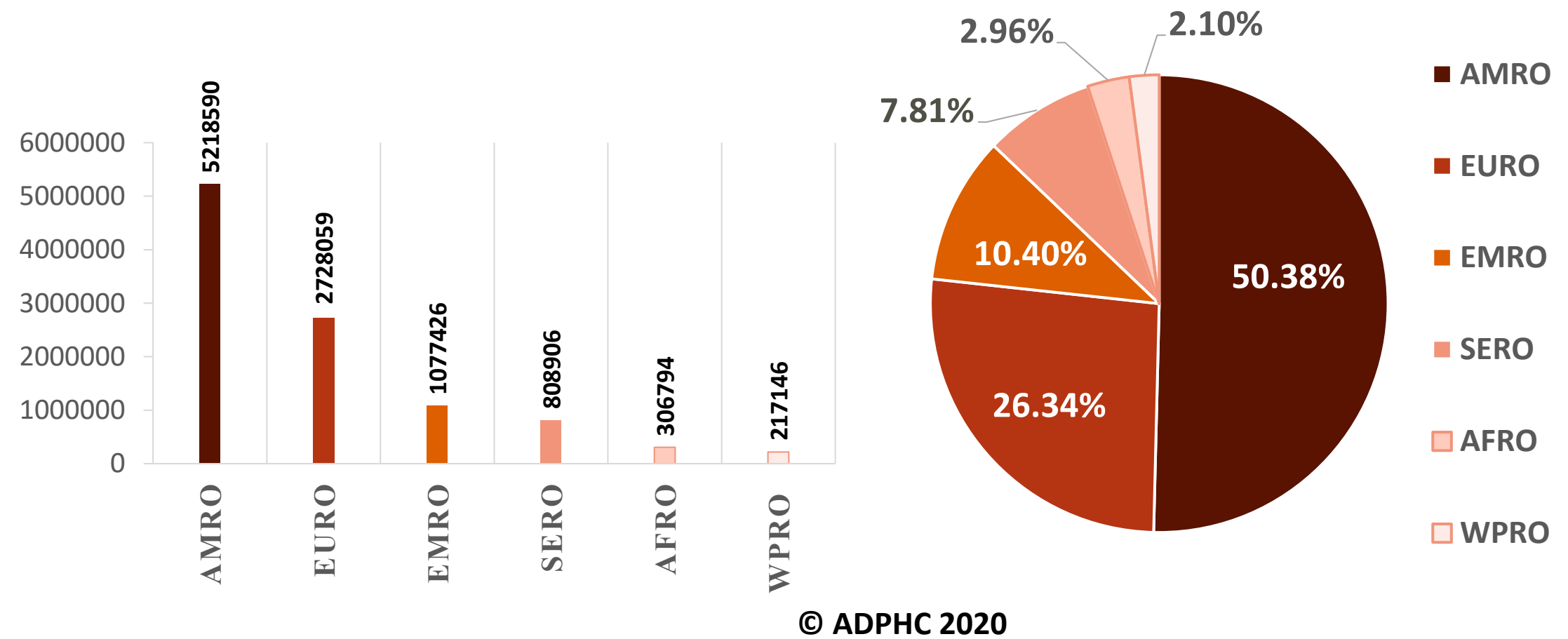
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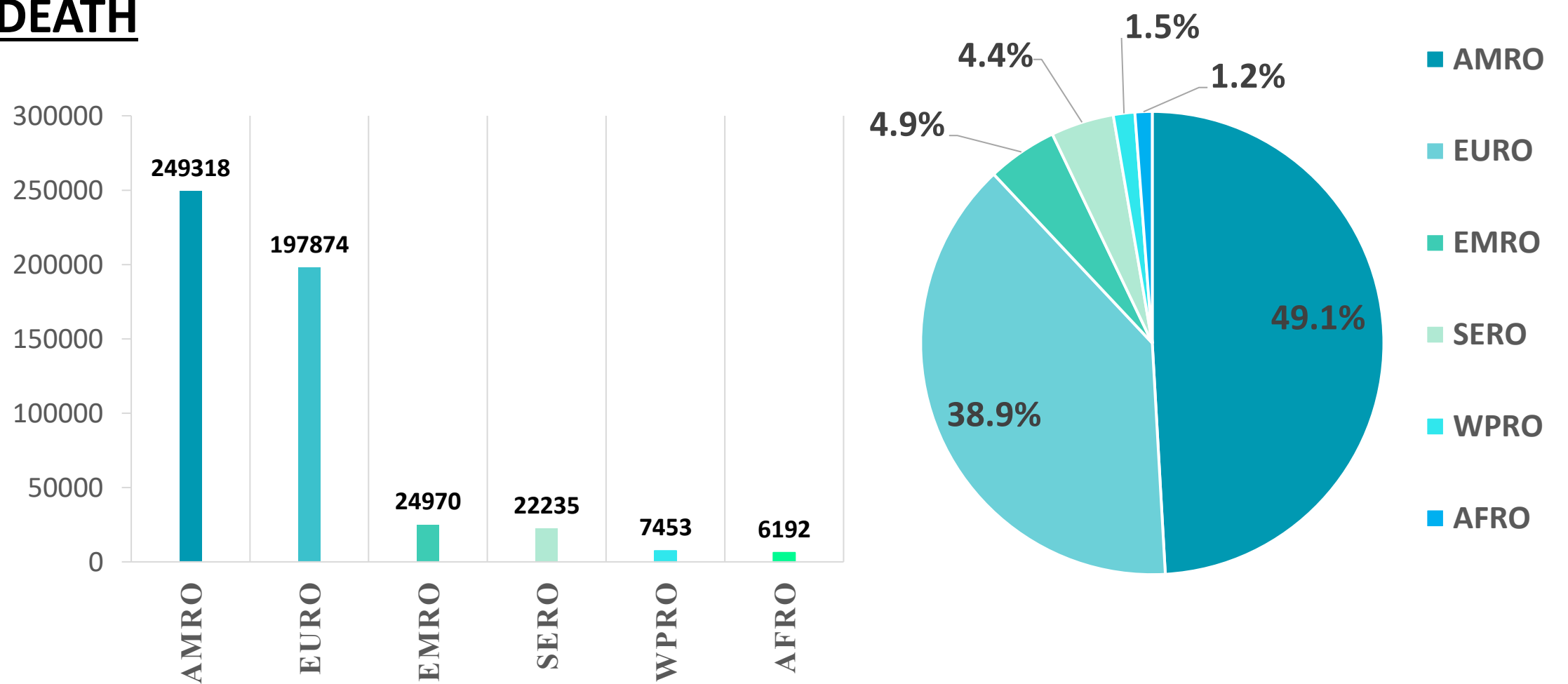
Figure 8: illustrate the Global distribution of COVID19 cases per region (July 1, 2020)



INFECTED



DEATH



Graphs published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

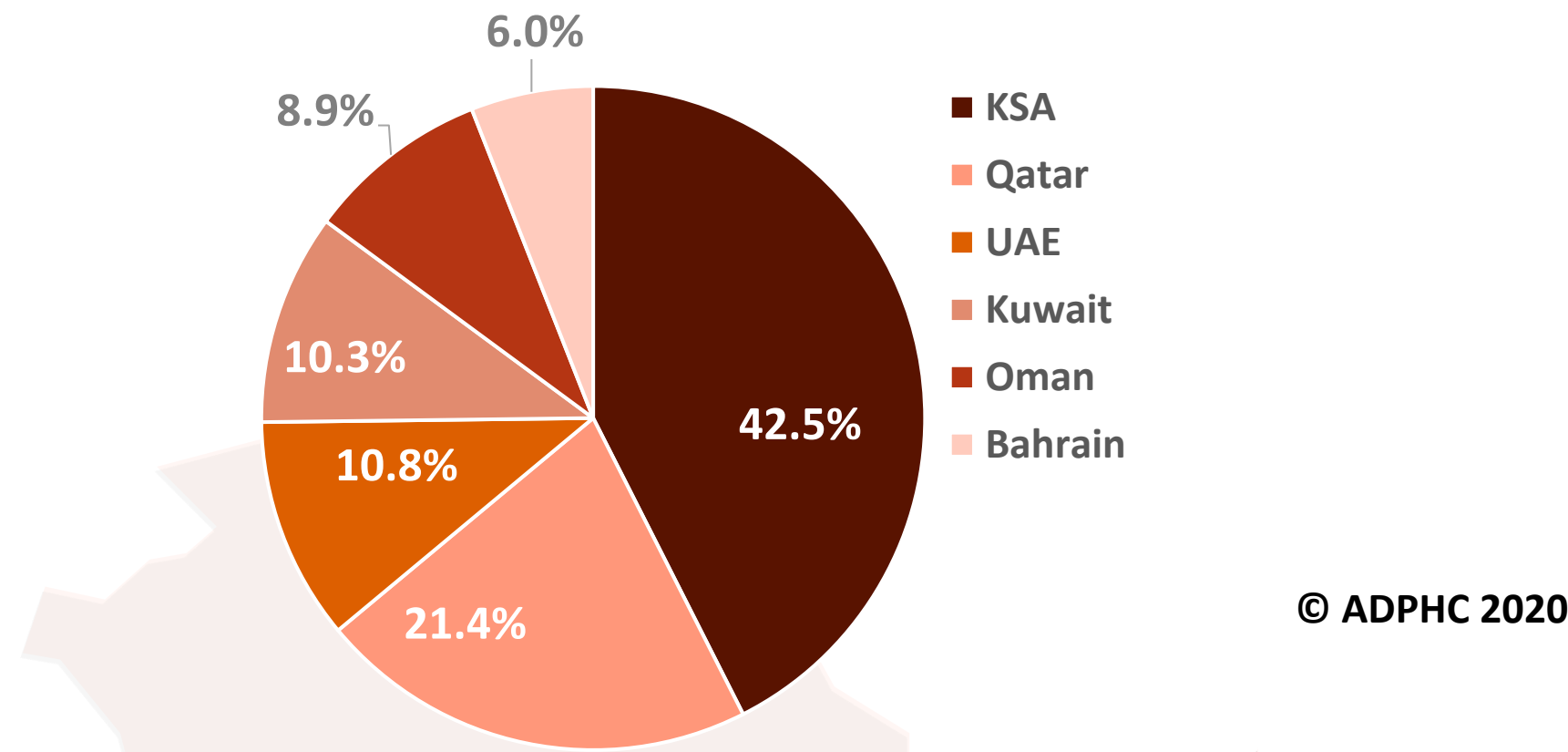
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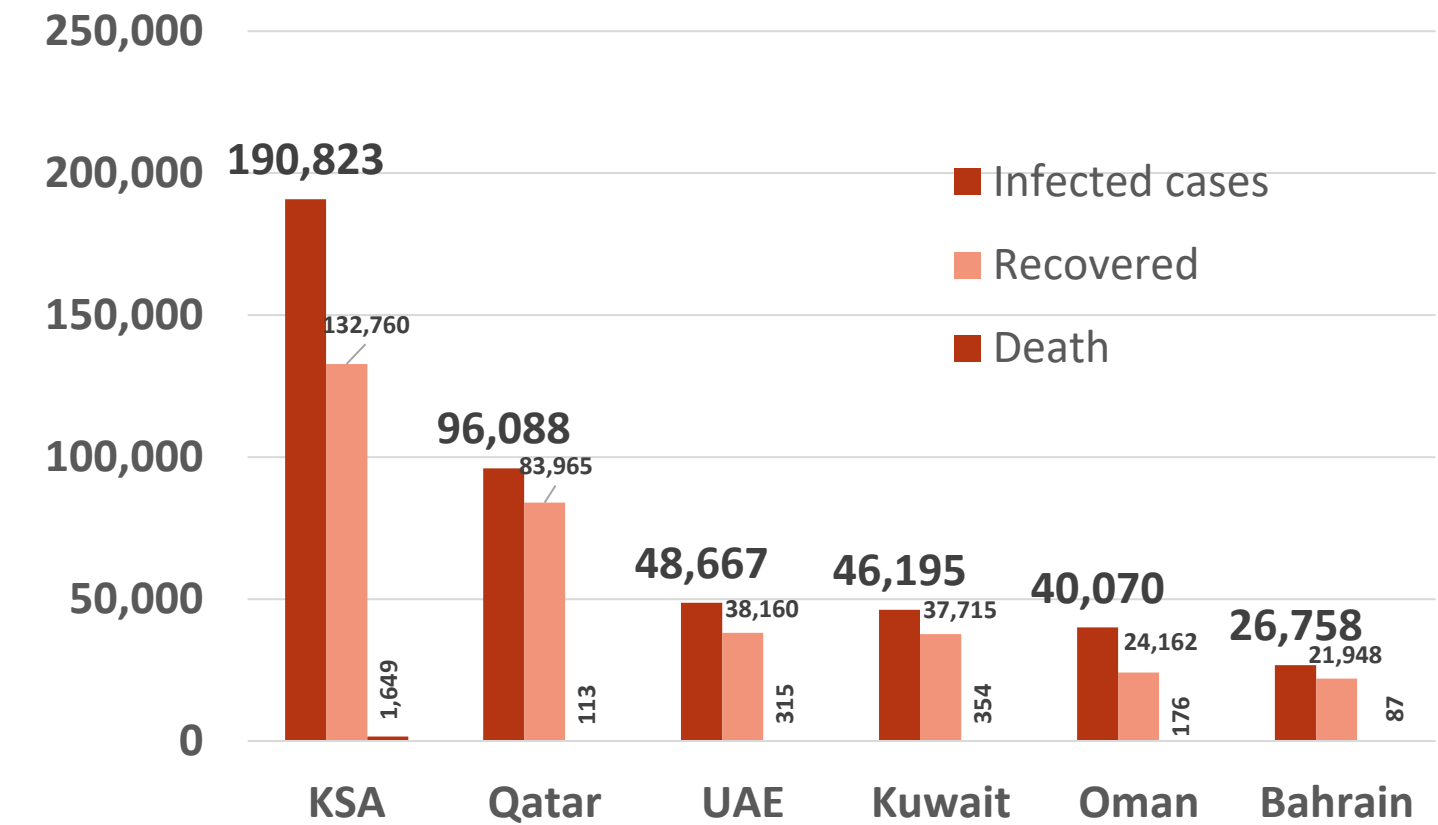
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Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (July 1, 2020)

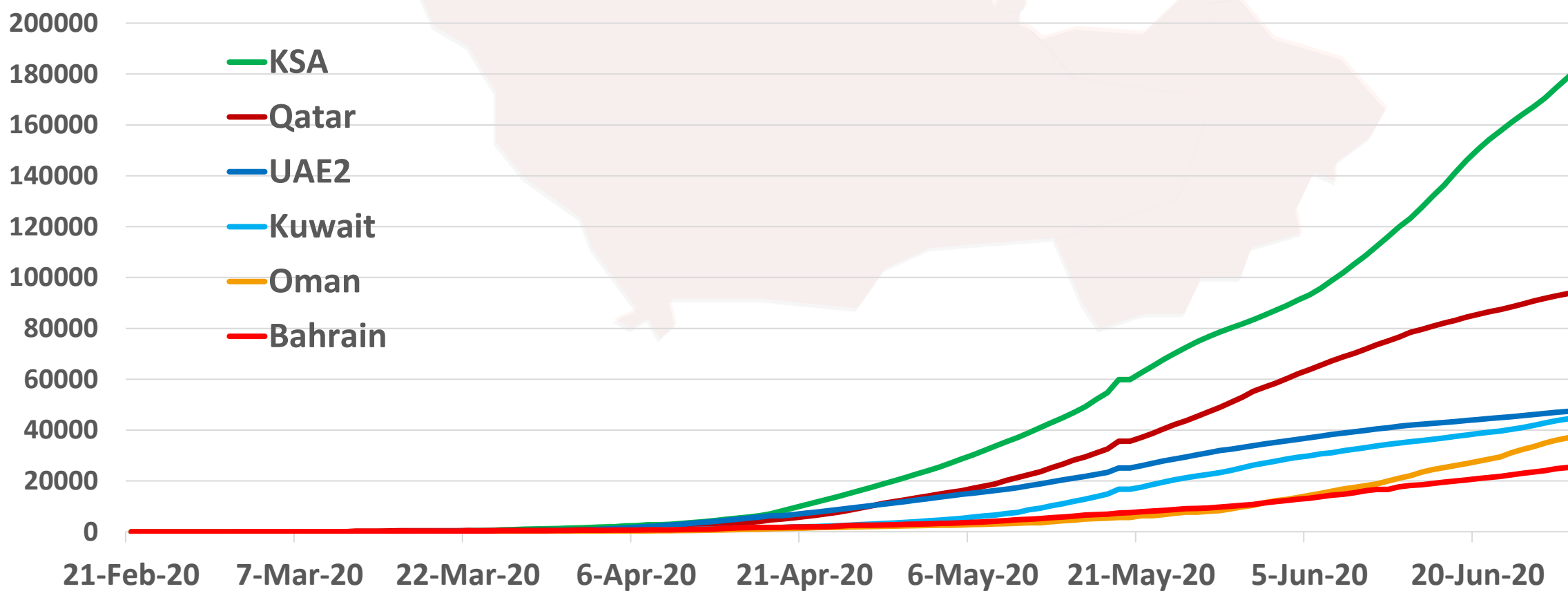
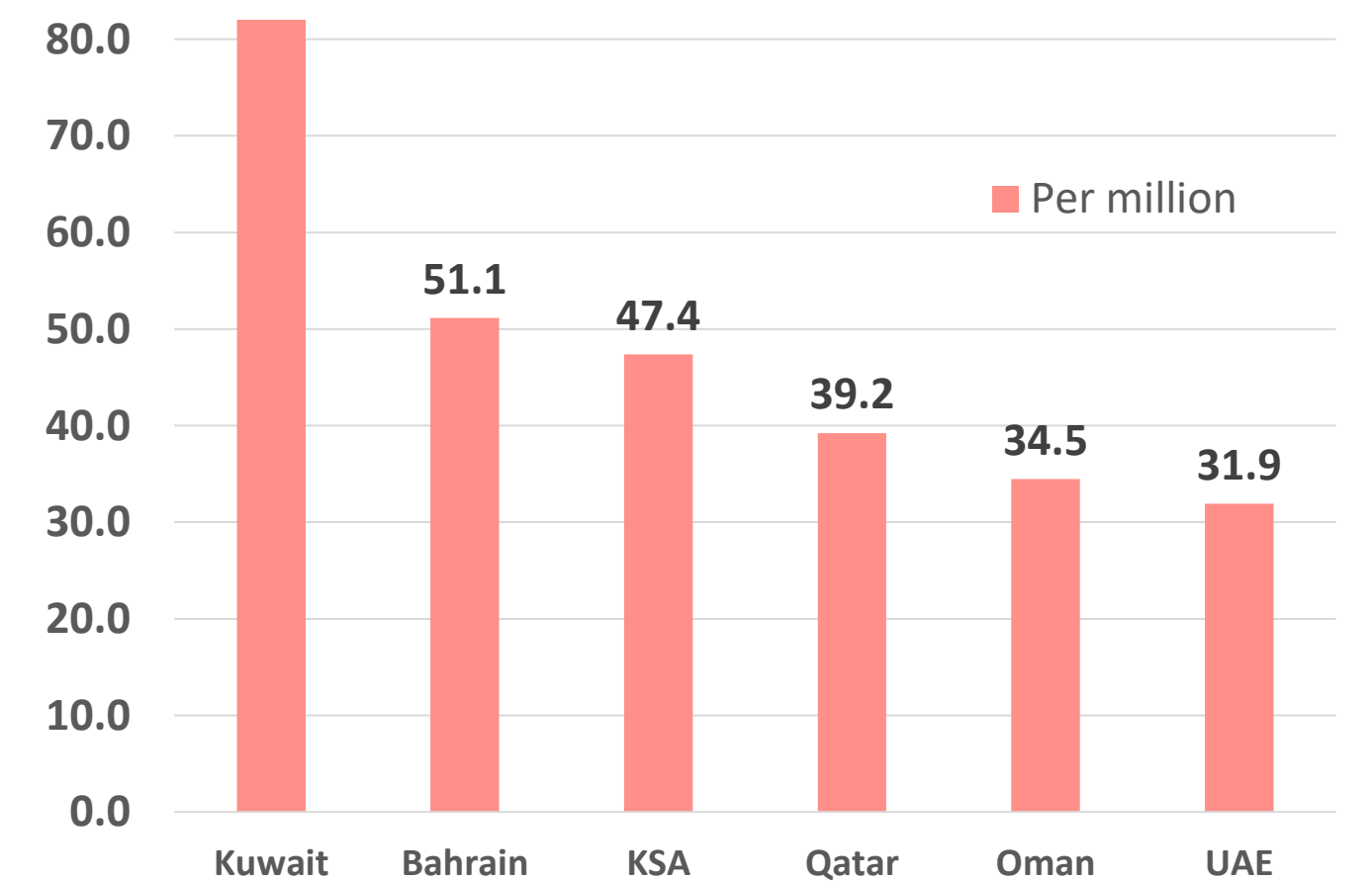
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



Graphs published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](https://www.who.int/)

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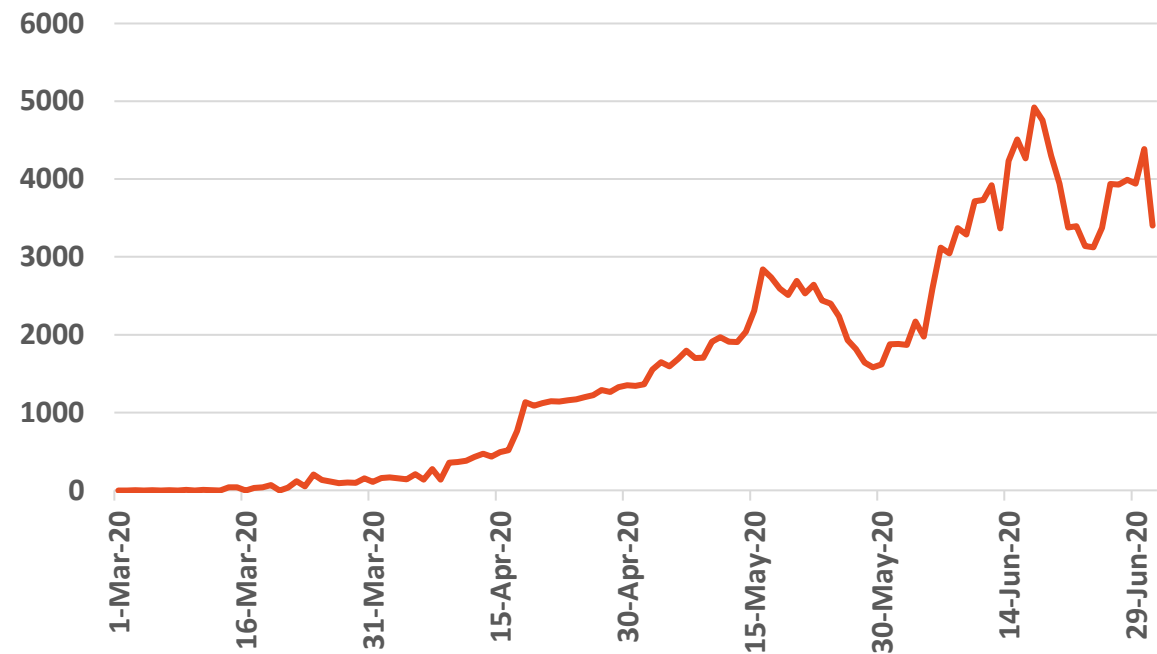
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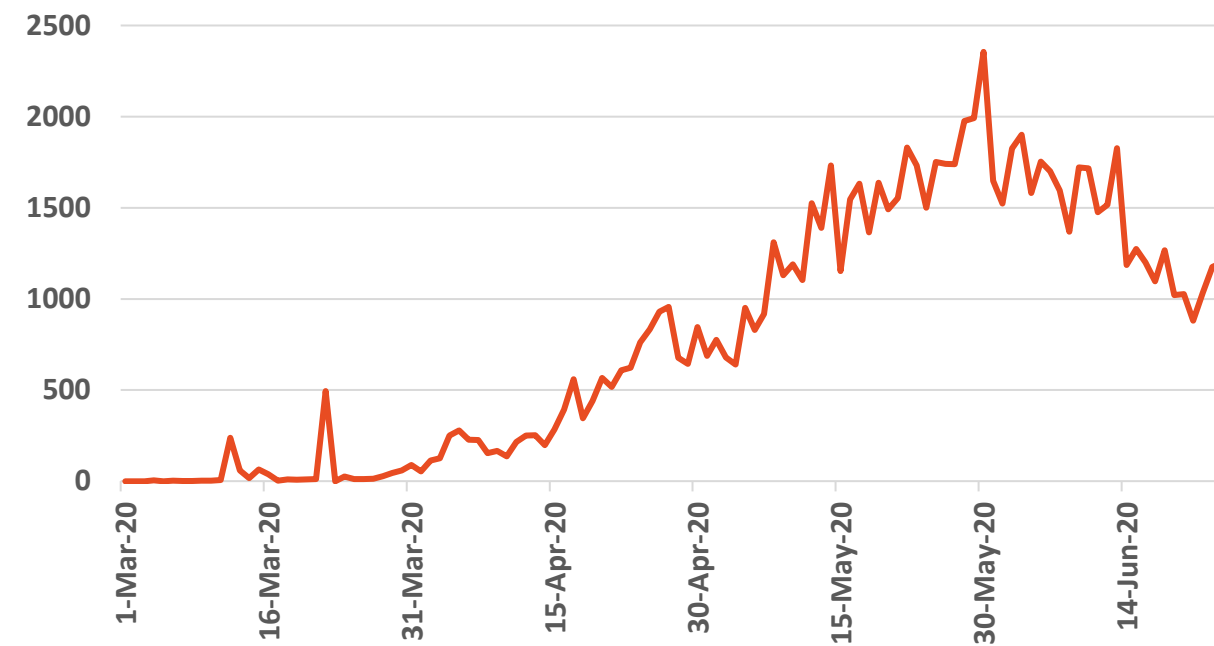
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries July 1, 2020)

KSA



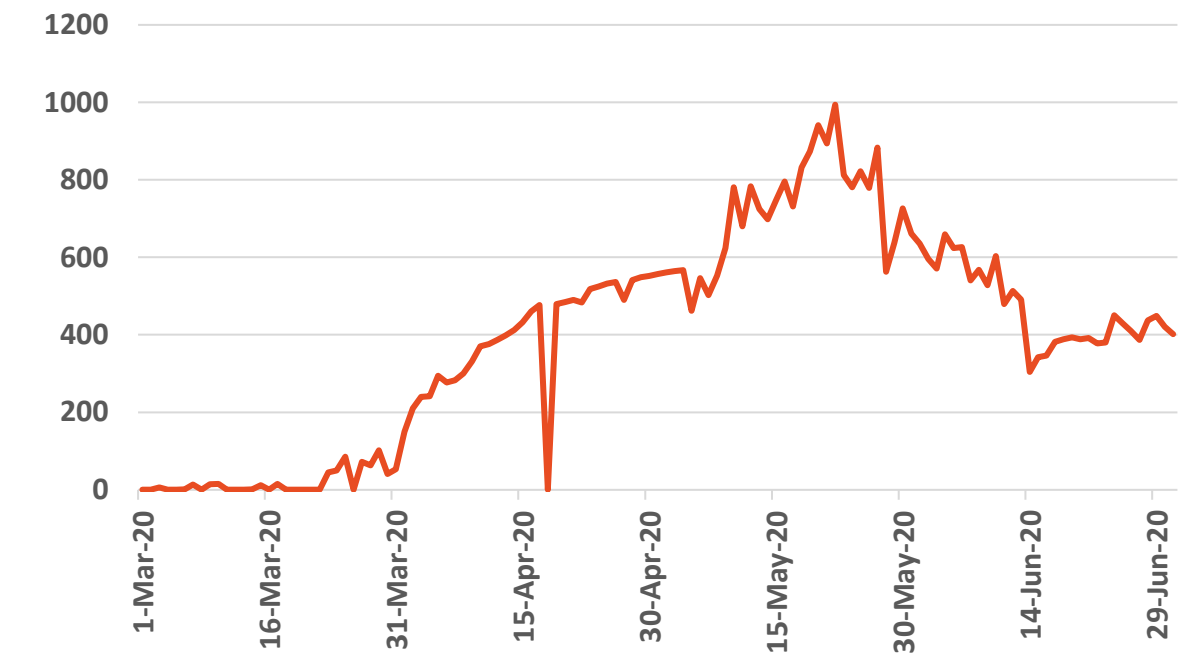
Source : KSA ministry of health

Qatar



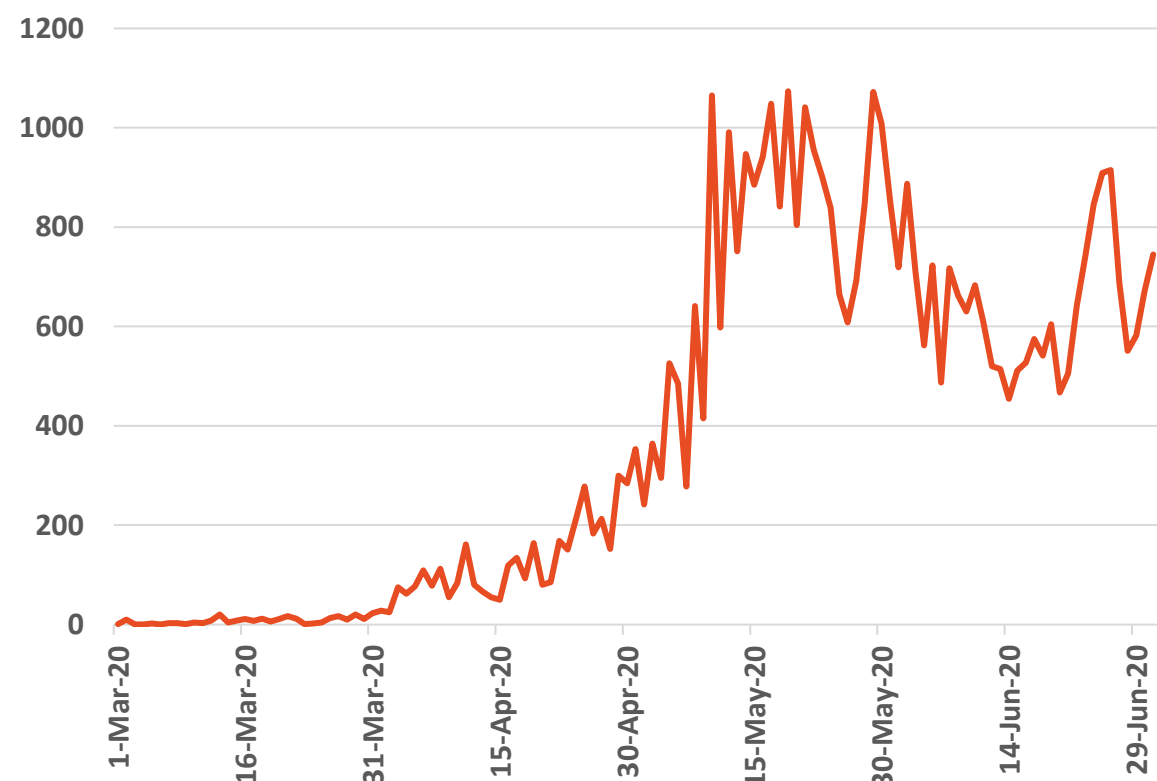
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

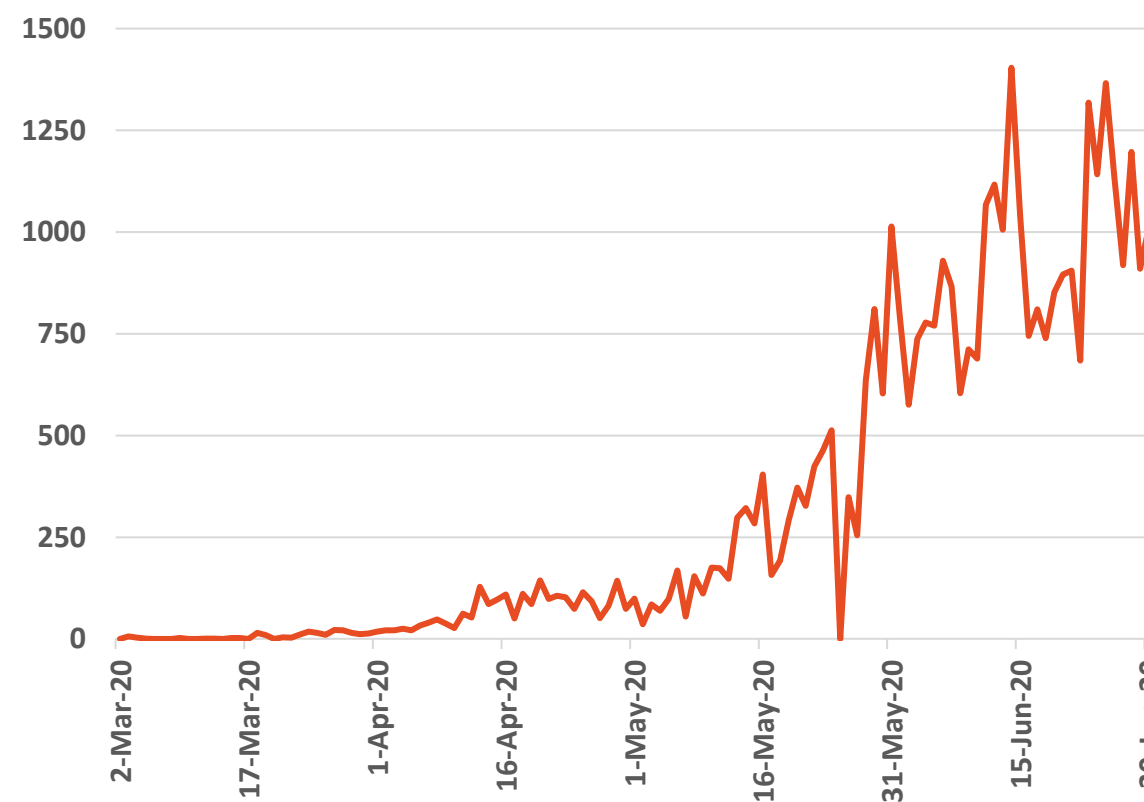
Kuwait



Source : Kuwait ministry of health

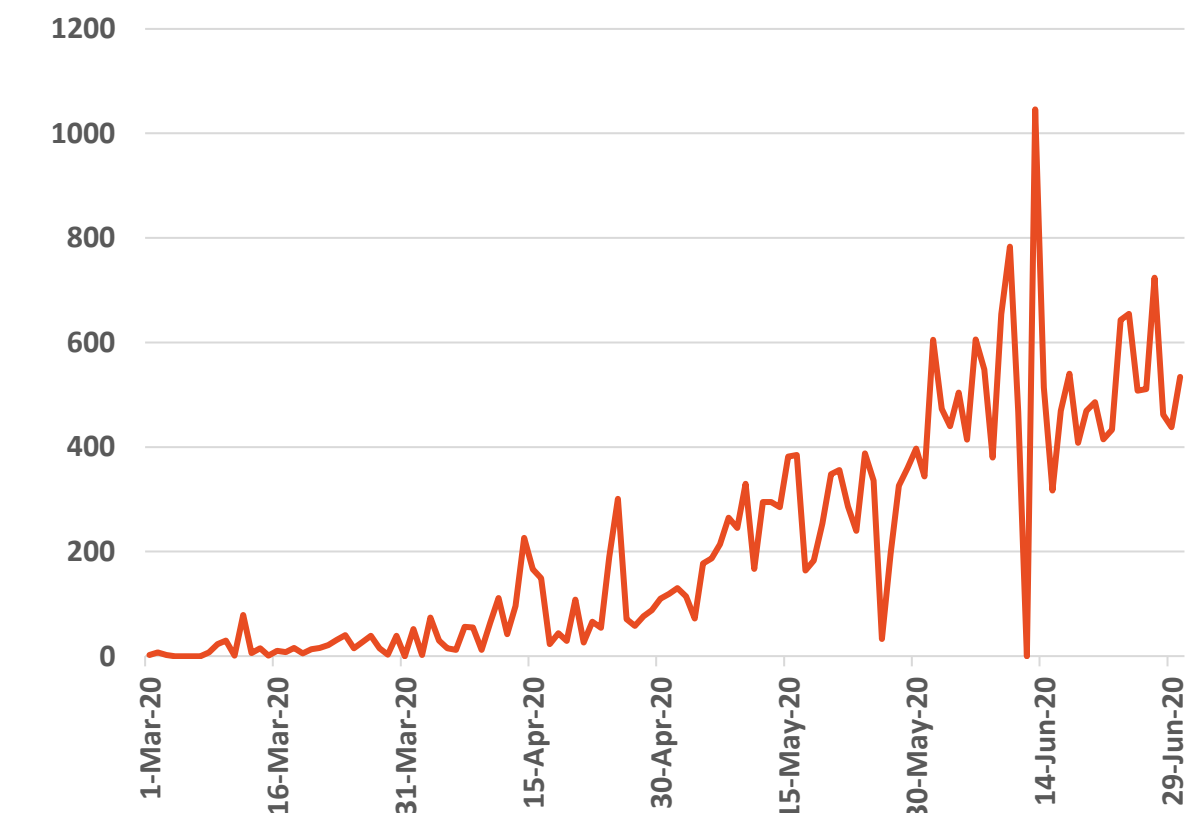
Oman

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Source :Oman ministry of health

Bahrain



Source :WHO

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

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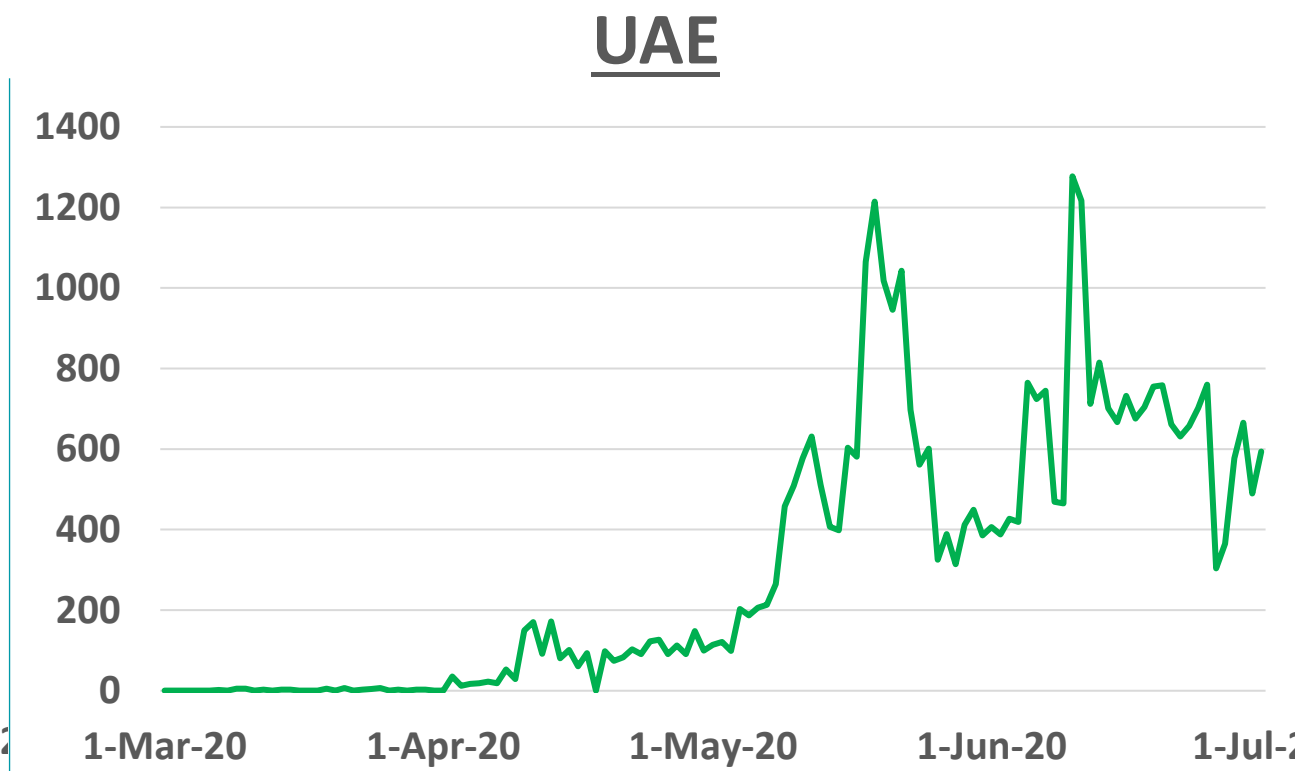
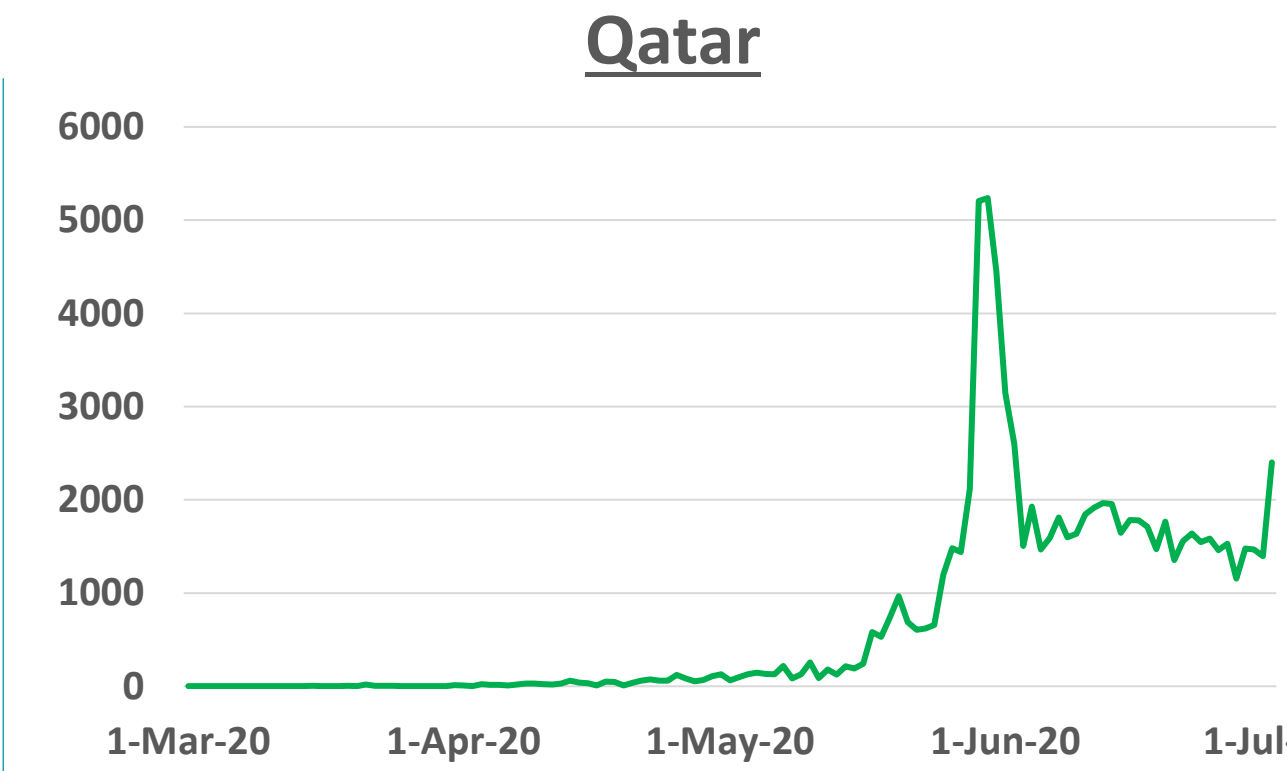
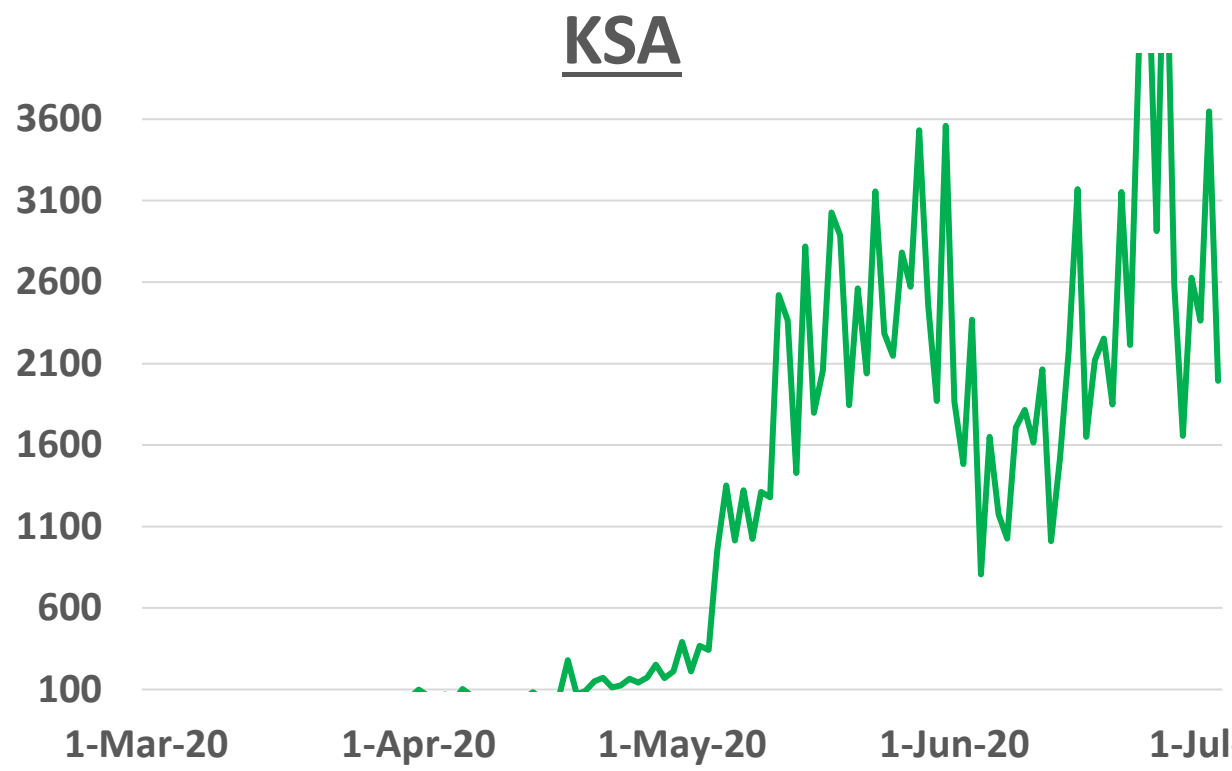
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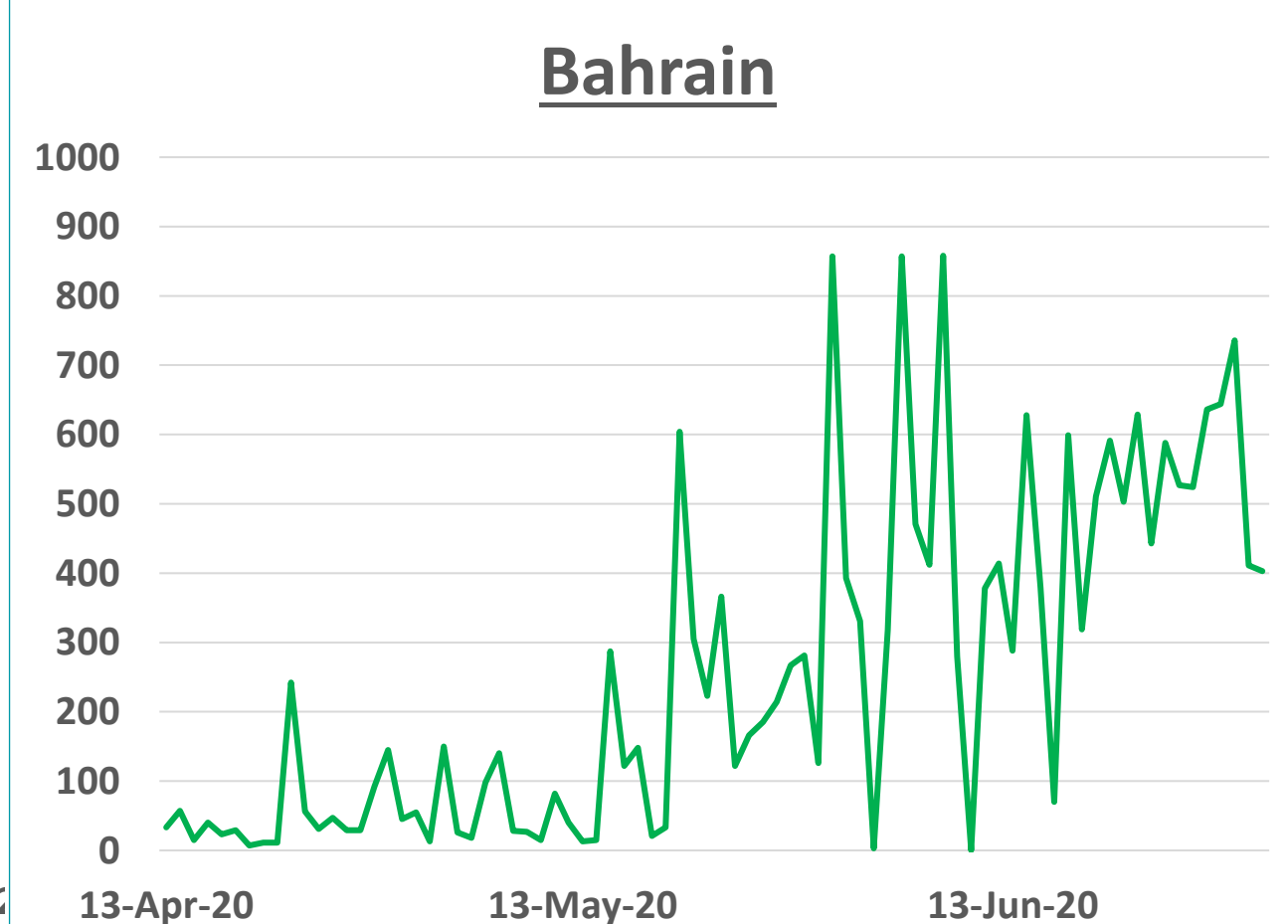
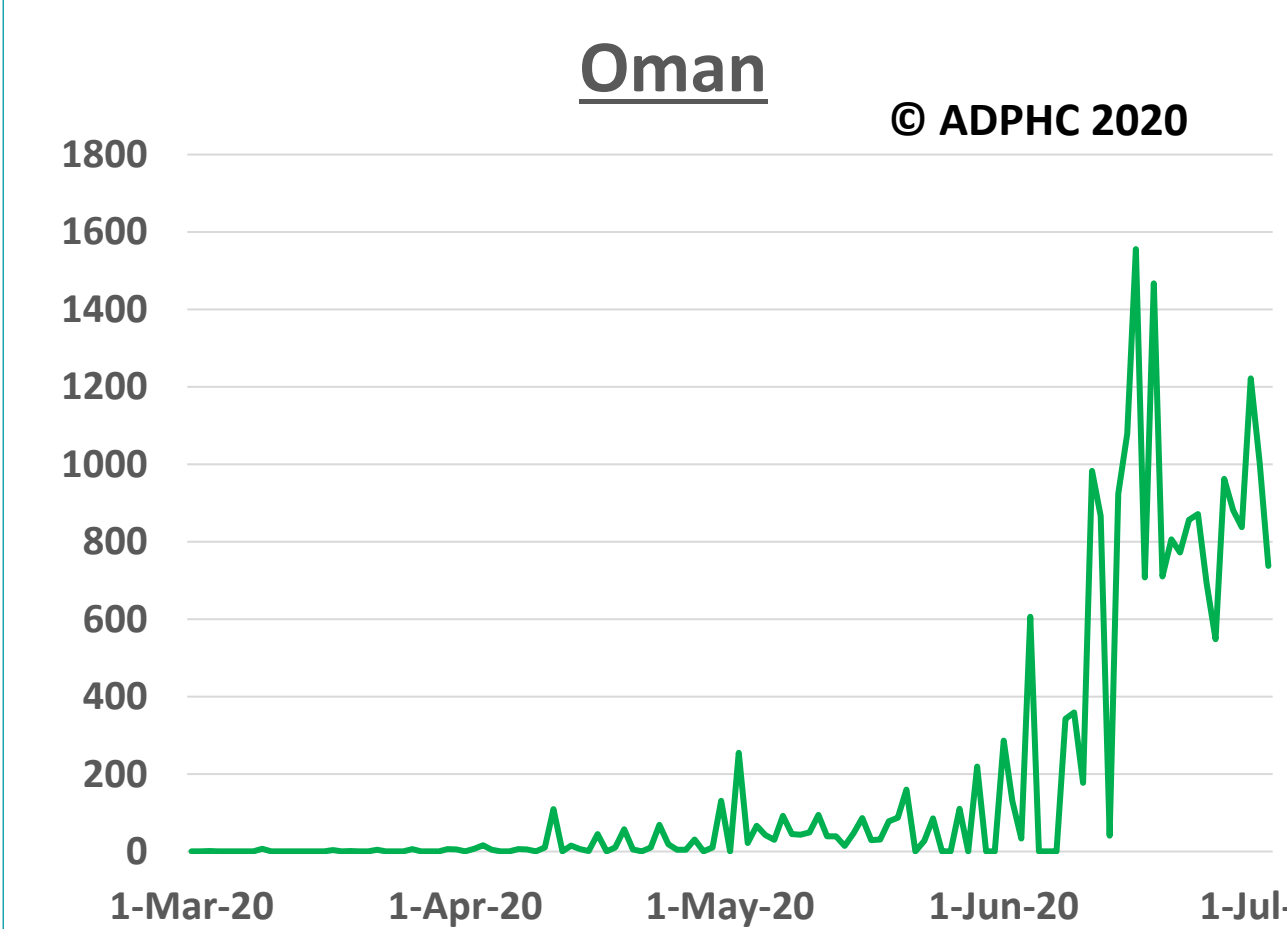
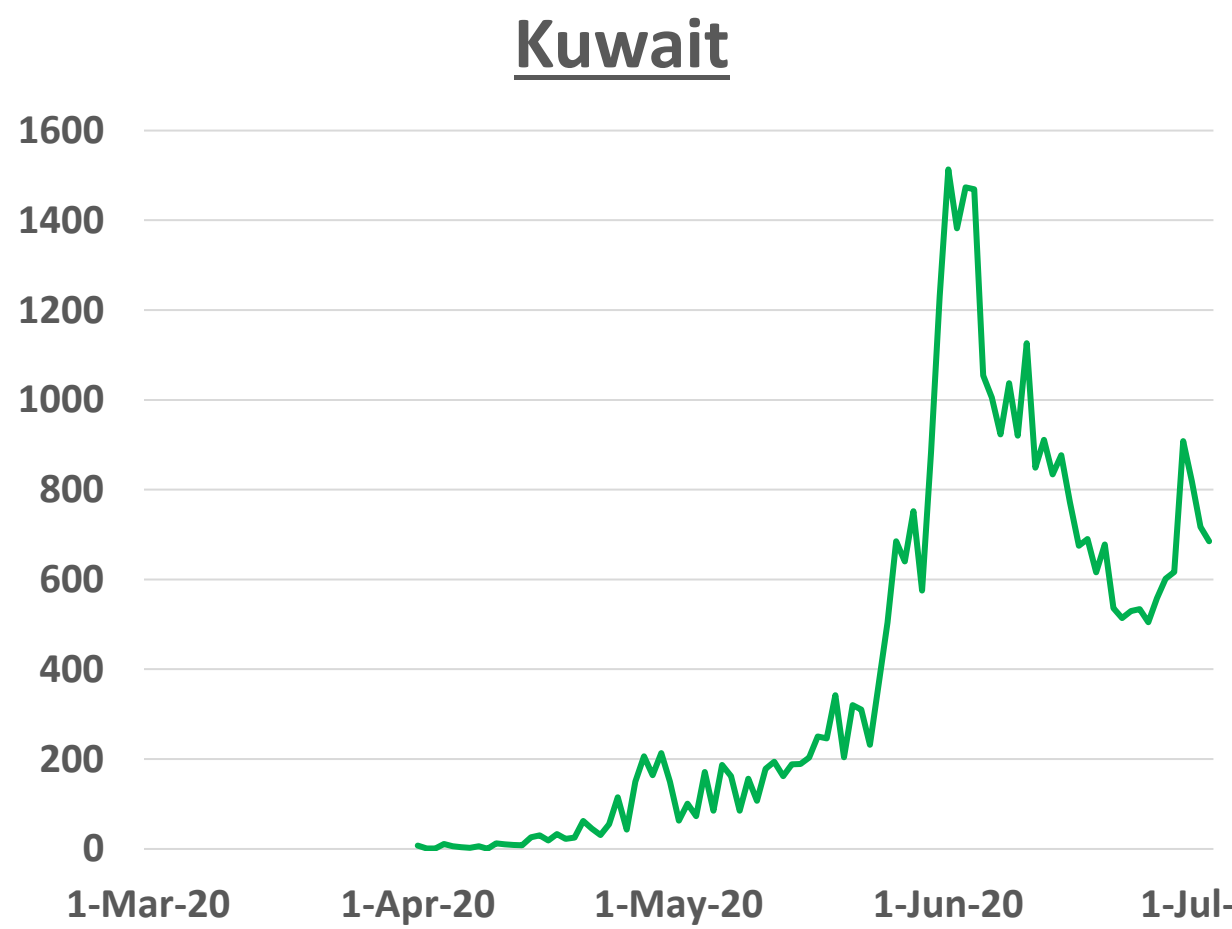
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (July 1, 2020)



Source : KSA ministry of health

Source : Qatar ministry of health

Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health

Source : Oman ministry of health

Source : GCCStat

Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

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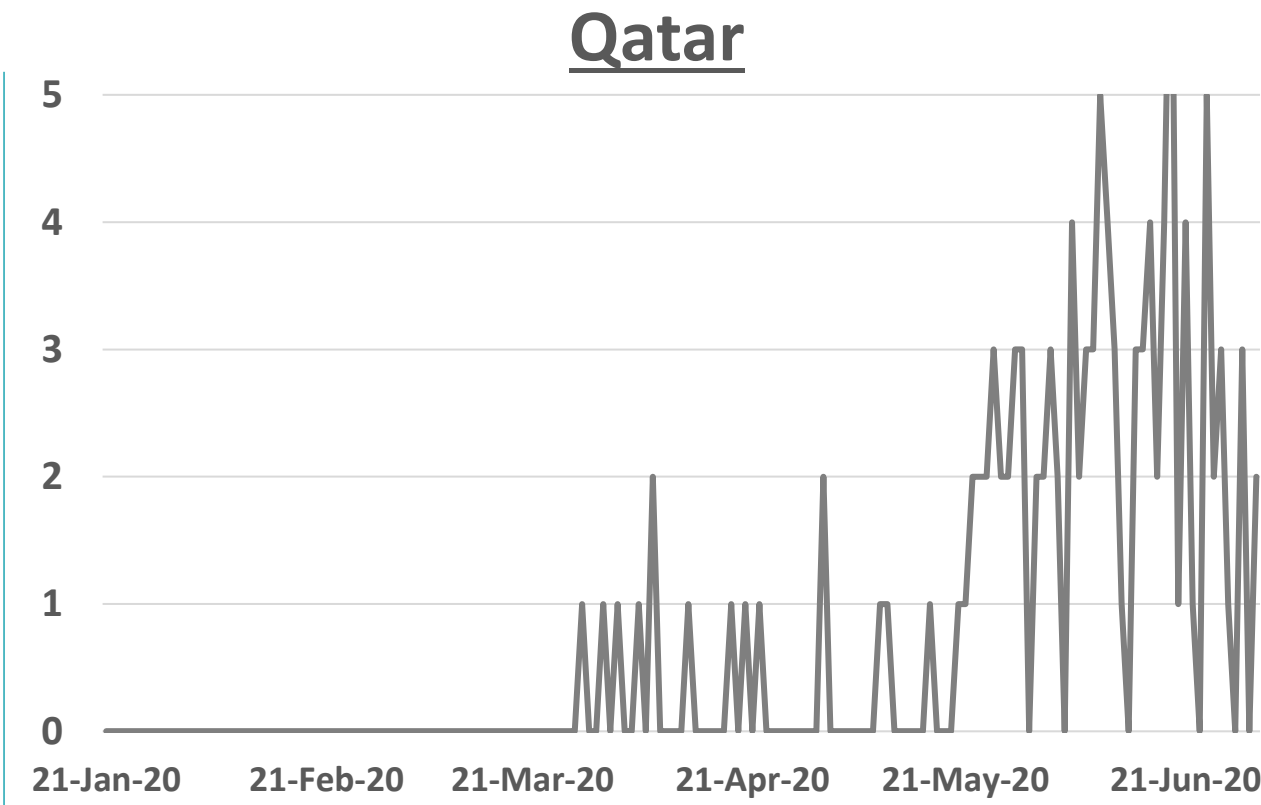
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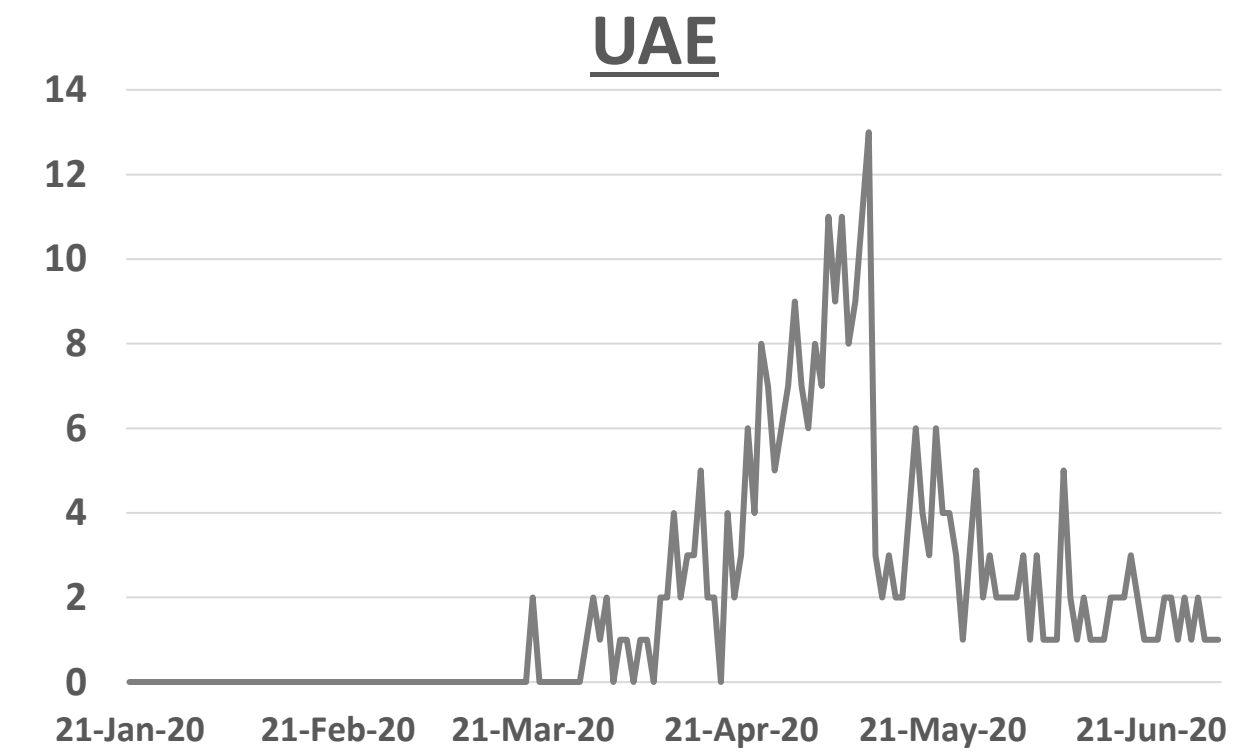
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (July 1, 2020)



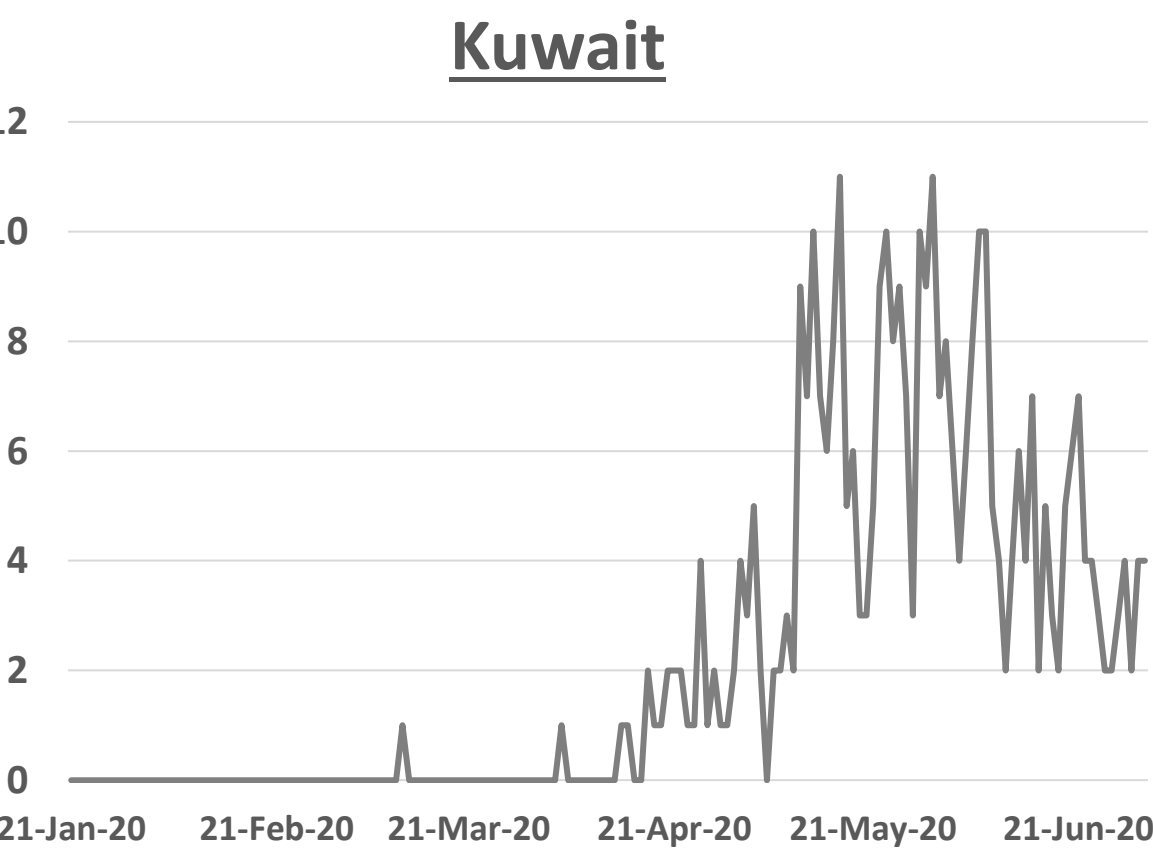
Source : KSA ministry of health



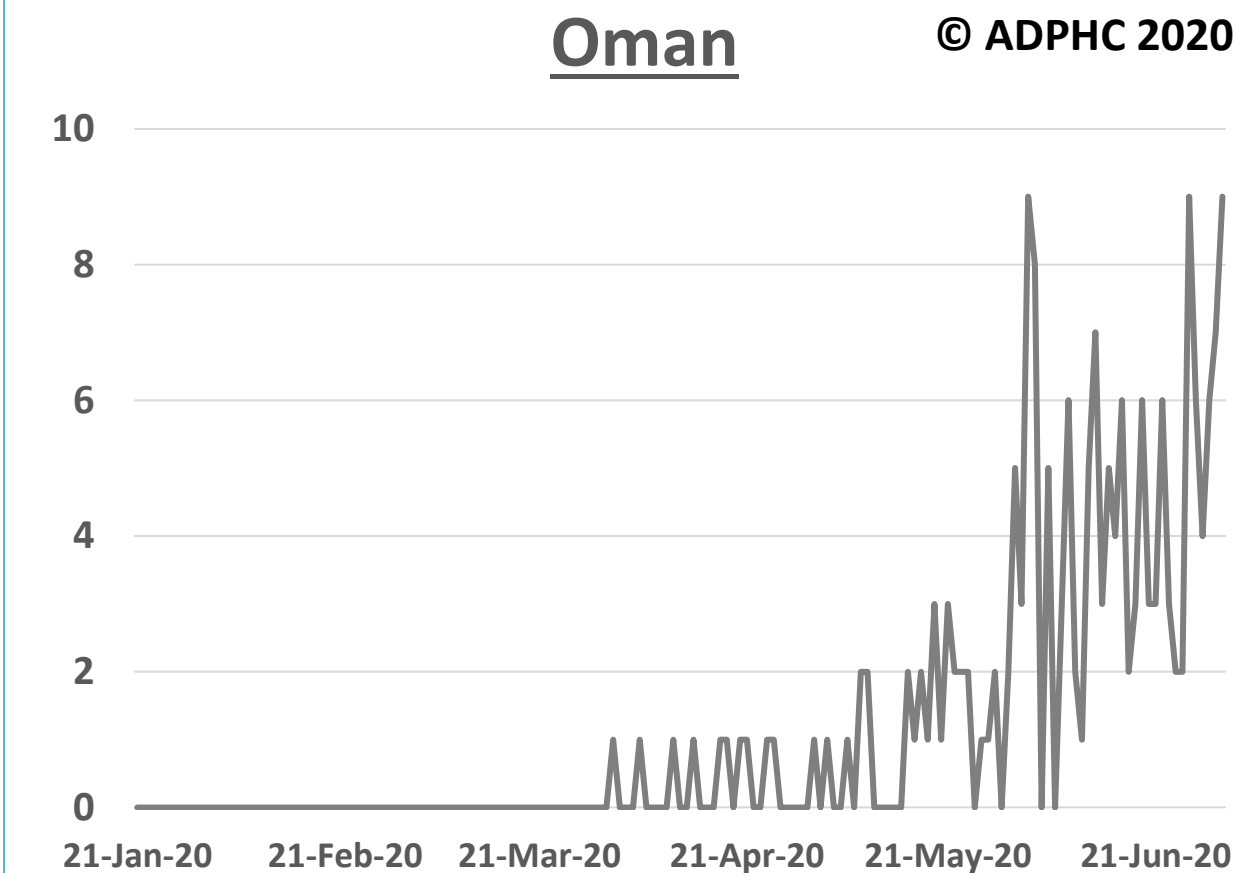
Source : Qatar ministry of health



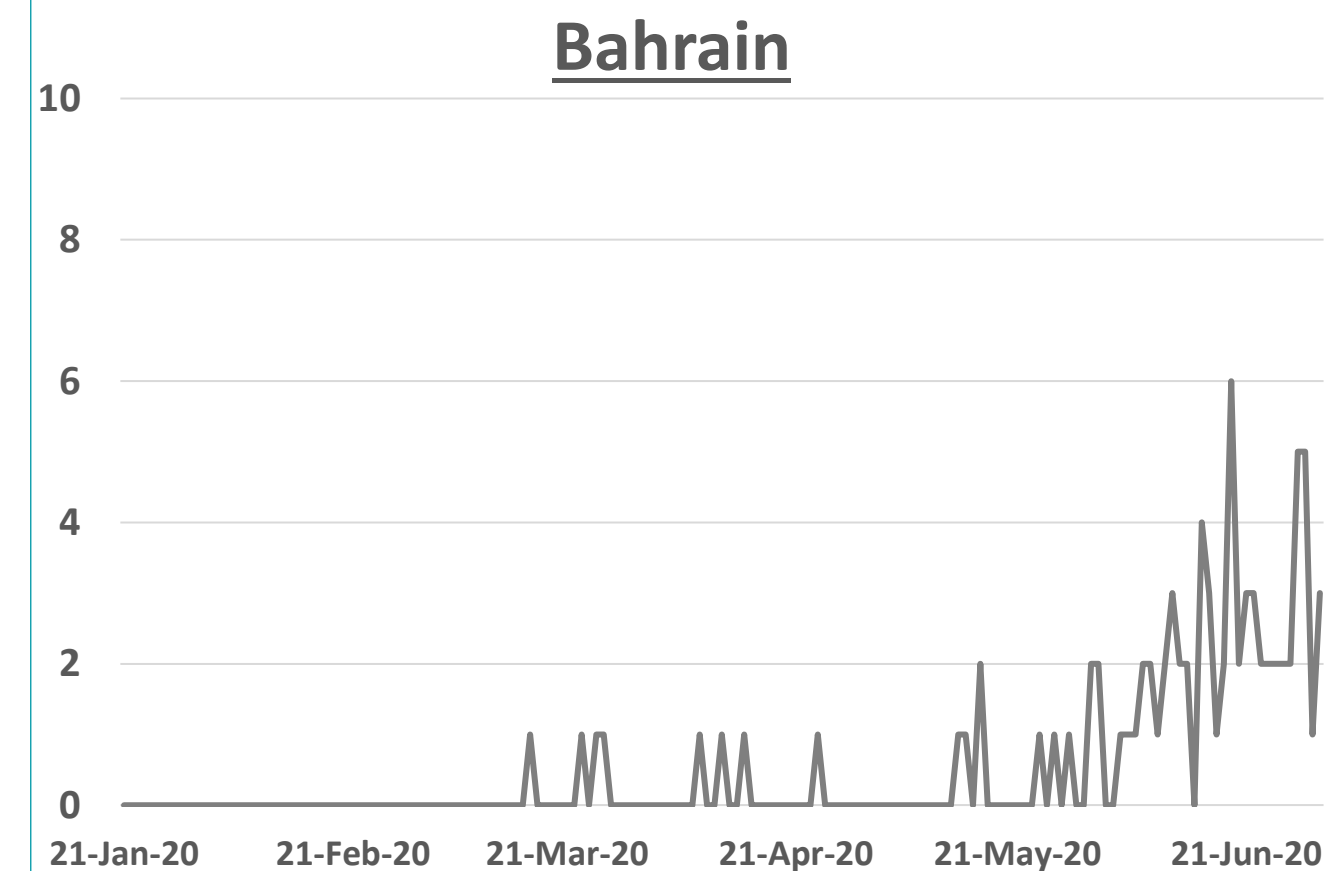
Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health



Source :Oman ministry of health



Source :WHO





VIROLOGY

Article 1: Prevalent Eurasian Avian-Like H1N1 Swine Influenza Virus with 2009 Pandemic Viral Genes Facilitating Human Infection

Published: 29 June 2020 [Proc Natl Acad Sci U S A](#)

Summary:

Influenza A virus (IAV) is a global pathogen of human, mammalian, and avian species. Reassortment of influenza viruses is the main mechanism to generate progeny viruses that cause pandemics. Several pandemic IAVs were reassortants derived from human and animal influenza viruses. Pigs, being susceptible to avian, swine, and human IAVs, are “mixing vessels” and can independently facilitate the genesis of a human pandemic IAV strain with pandemic potential.

- Investigators performed an extensive SIVs surveillance program between 2011-2018 in 10 Chinese provinces. They identified a reassortant EA H1N1 virus possessing pdm/09 and TR-derived internal genes (G4 genotype), predominant in swine populations since 2016. Serological surveillance among swine workers and general population showed G4 EA H1N1 viruses have acquired an increased human infectivity. Furthermore it showed that 10.4% (35/338) of swine workers were positive for G4 EA H1N1 virus, particularly 18y to 35y old, who had 20.5% (9/44) seropositive rates,
- Five human cases of EA-like SIV infection have been reported in China. First three cases were children under 3y. Two cases, reported in 2016 and 2019, were of a 46 and a 9y old, respectively. Genetic analysis indicated that latter two cases were caused by G4-like EA H1N1 virus.

Conclusion

Close monitoring in human populations, especially the workers in swine industry, should be implemented.

Table 1. Seropositive rate of influenza virus in swine workers (SW) and common household population (CHP)

Strain (genotype)	Univariable analysis				P value, χ^2	Multivariable regression analysis	
	SW (n = 338)		CHP (n = 230)			aOR (95% CI) SW versus CHP	P value
	No. positive	% positive	No. positive	% positive			
SW/HN/08/11 (G1 EA H1N1)	22	6.5	5	2.2	0.017	3.02 (1.11 to 8.19)	0.030
Controls for possible cross-reactivity with pdm/09 H1N1						2.60 (0.93 to 7.23)	0.068
SW/SD/1207/16 (G4 EA H1N1)	35	10.4	10	4.4	0.009	2.60 (1.24 to 5.45)	0.012
Controls for possible cross-reactivity with pdm/09 H1N1						2.25 (1.05 to 4.83)	0.038
A/Michigan/45/2015 (pdm/09 H1N1)	131	38.8	73	31.7	0.087	1.38 (0.96 to 1.99)	0.082

Boldface indicates a statistically significant difference ($P < 0.05$). Model covariates: gender, age group, and collection year.





Article 2: Antibody Tests for Identification of Current and Past Infection with SARS-CoV-2

Published: 25 June 2020 [Cochrane Database Syst Rev](#)

Summary:

- Study was conducted to assess the diagnostic accuracy of antibody tests used to determine if a person has SARS-CoV-2 infection or had SARS-CoV-2 infection (both point-of-care and laboratory-based tests). Investigators searched in the Cochrane COVID-19 Study Register and the COVID-19 Living Evidence Database until 27 April 2020.
- The review included 57 publications with 15976 samples (8526 SARS-CoV-2 infection). Studies were conducted in Asia, Europe, USA, and China. Twenty-five commercial tests were identified.
- Forty-four studies included hospitalised patients and no studies exclusively in asymptomatic participants. Substantial heterogeneity in sensitivities of IgA, IgM and IgG antibodies were observed. The authors used 38 studies which stratified results by time since symptom onset.
- Pooled results for IgG, IgM, IgA, total antibodies and IgG/IgM all showed low sensitivity during the first week since onset of symptoms (all less than 30.1%), rising in the second week and reaching their highest values in the third week. The estimates of accuracy beyond three weeks are based on smaller sample sizes and fewer studies. However, for 21 to 35 days, the pooled sensitivities for IgG/IgM were 96.0%, with scarce studies to estimate sensitivity of tests beyond 35 days post-symptom onset.
- Authors concluded that sensitivity of antibody tests is too low in the first week since symptom onset to have a primary role for the diagnosis of COVID-19, but they may still have a role complementing other testing in individuals presenting later.





Article 3: Testing Early, Testing Late: Four Countries' Approaches to COVID-19 Testing Compared

Published: 19 May 2020 [Our World in Data](#)

Summarized by subject matter expert

Summary:

Graphical comparison in the differences in testing strategies and in growth of confirmed cases over time for four countries - South Korea, Italy, United Kingdom, and United States. These countries adopted different approaches to testing and experienced different outbreaks. The author stresses that the indicators of how proactive a country's testing response has been, does not simply depend on the number of tests conducted to date but also depends on when the tests were conducted and how extensive the testing is relative to the size of the outbreak in the country

- **South Korea:** Widespread testing in early February, by the middle of March peak of outbreak had passed
- **Italy:** Gradual testing from early March, by April, testing continued to accelerate while the outbreak slowed.
- **United Kingdom:** Head start on testing but by March testing had stagnated. In early April, testing had increased considerably, but the outbreak had grown far quicker. By late April, there was a dramatic acceleration in testing.
- **United States:** Testing began in mid-March. By April, although the number of tests in the US began to outstrip other countries, so did the outbreak. Late April, that the number of tests per confirmed case began to rise.

Conclusion:

whilst all four countries experienced their first cases of COVID-19 in late January, however, three months later, each country went on to follow very different paths as a result of differences in both the timing and extent of testing. Therefore, to understand how successful a country's response to the pandemic has been, the data on confirmed cases and the data on testing need to be assessed together and not separately.





Special Updates

Updates: COVID-19 Global Research and Innovation Forum

Hosted: WHO from 1st – 2nd July 2020.

Summary of 1st Day:

- WHO hosted its second research forum on COVID-19 pandemic inviting researchers and scientists from around the world
- First day's session hosted various topics on what we know about the virus, transmission, research ethics, vaccination research and social distancing measures (mask use)

Prominent Updates - Release of Preliminary Results on Clinical Trials:

Total data of 20,000 cases from the following trials:

- RECOVERY TRIAL 11800 cases
- SOLIDARITY trial 5200 cases
- NIAIDA 2000 cases.

Results of the below drugs was discussed:

- HCQ, Lopinavir, Remdesivir, Dexamethasone.

Findings

- HCQ and Lopinavir were worse compared to local standard of care, however, results were statistically insignificant.
- Dexamethasone showed improvement on patients that required invasive ventilation as previously posted on RECOVERY Trial*
- Remdesivir (data still is not clear about this drug)

* Review our previous summary on [the topic 18.6.2020](#)

Numbers randomised in the 4 comparisons

8000 Lopinavir

6500 Hydroxychloroquine

6500 Dexamethasone

3000 Remdesivir



THANK YOU



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