

SCIENTIFIC RESEARCH MONITORING ON COVID-19

29 JUNE 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>



Today's Content

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Scientific Research

- **Immunology:**
 - A sero-prevalence study in Hong Kong found low seropositivity rate 4%.
 - Article suggests that in born errors of metabolism (a group of genetic disorders) might be related to cases with sever symptoms in younger than 50 years.
- **Vaccine:** article describes how vaccines shall be mandate and what the trigger factor to initiate compulsory vaccine in a community.



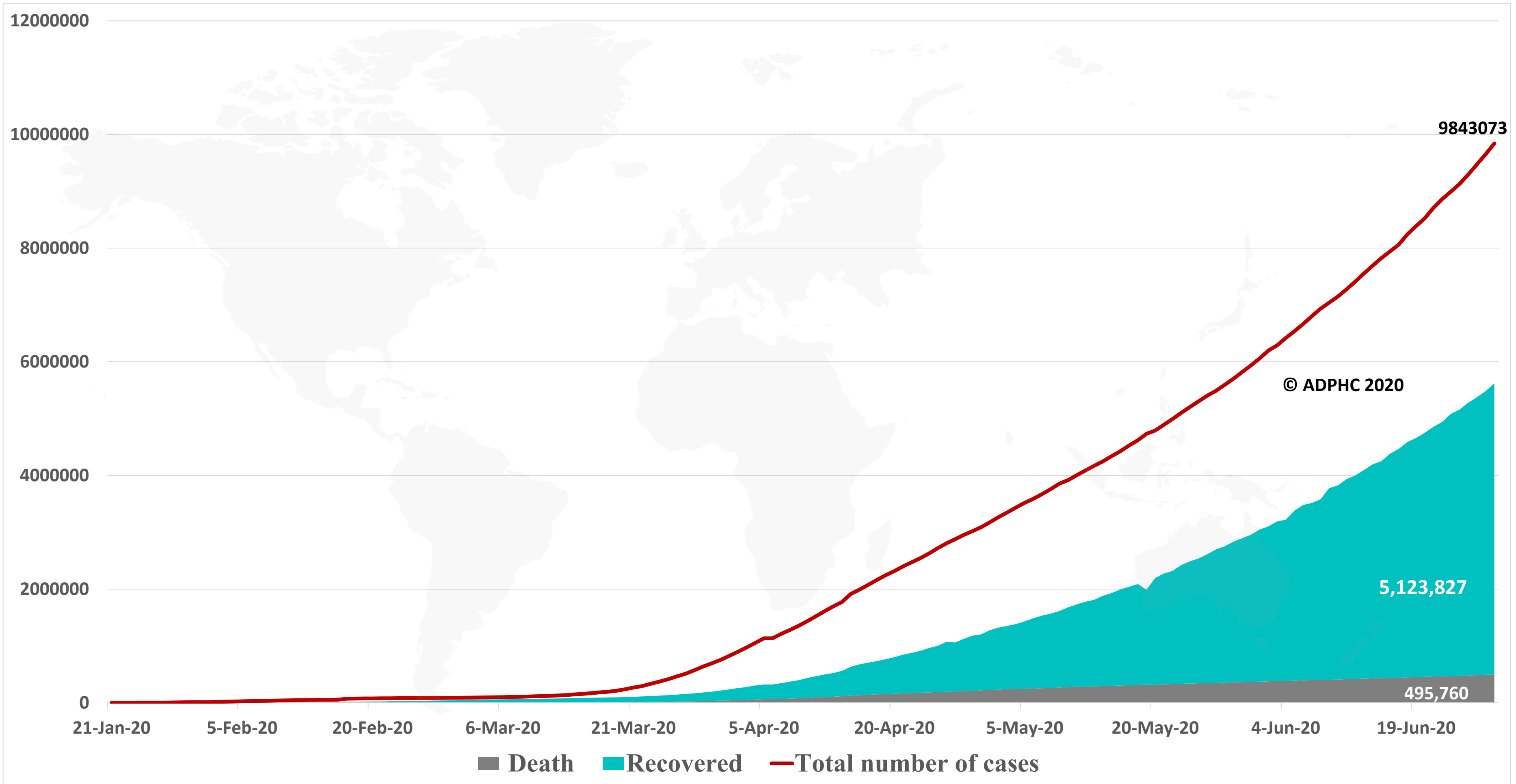


- WHO reported a record number of new cases in the last 24 hours globally (**189 077 cases**), with several countries reporting their highest number of new cases in a 24-hour period. As Dr Tedros remarked in his media briefing on 24 June, ‘(E)ven as we continue research into vaccines and therapeutics, we have an urgent responsibility to do everything we can with the tools we have now to suppress transmission and save lives.’
- WHO have recently updated guidance on critical actions countries can take. Planes carrying more than 4.7 million items of personal protective equipment, procured by WHO/Europe with funding from the European Union, have landed in **Azerbaijan, Belarus and Ukraine** over the last two days. The essential protective equipment will help health-care workers in the three countries respond effectively and safely to the COVID-19 pandemic.
- The phenomenon of an ‘infodemic’ has escalated to a level that requires a coordinated response. An infodemic is an overabundance of information—some accurate and some not—occurring during an epidemic. WHO is holding its first Infodemiology Conference, with a **public conference on 29 June followed by a scientific conference from 30 June through 16 July.**





Figure 1: Total number of infected, recovered, and death cases (January 21st to Jun 28, 2020)



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

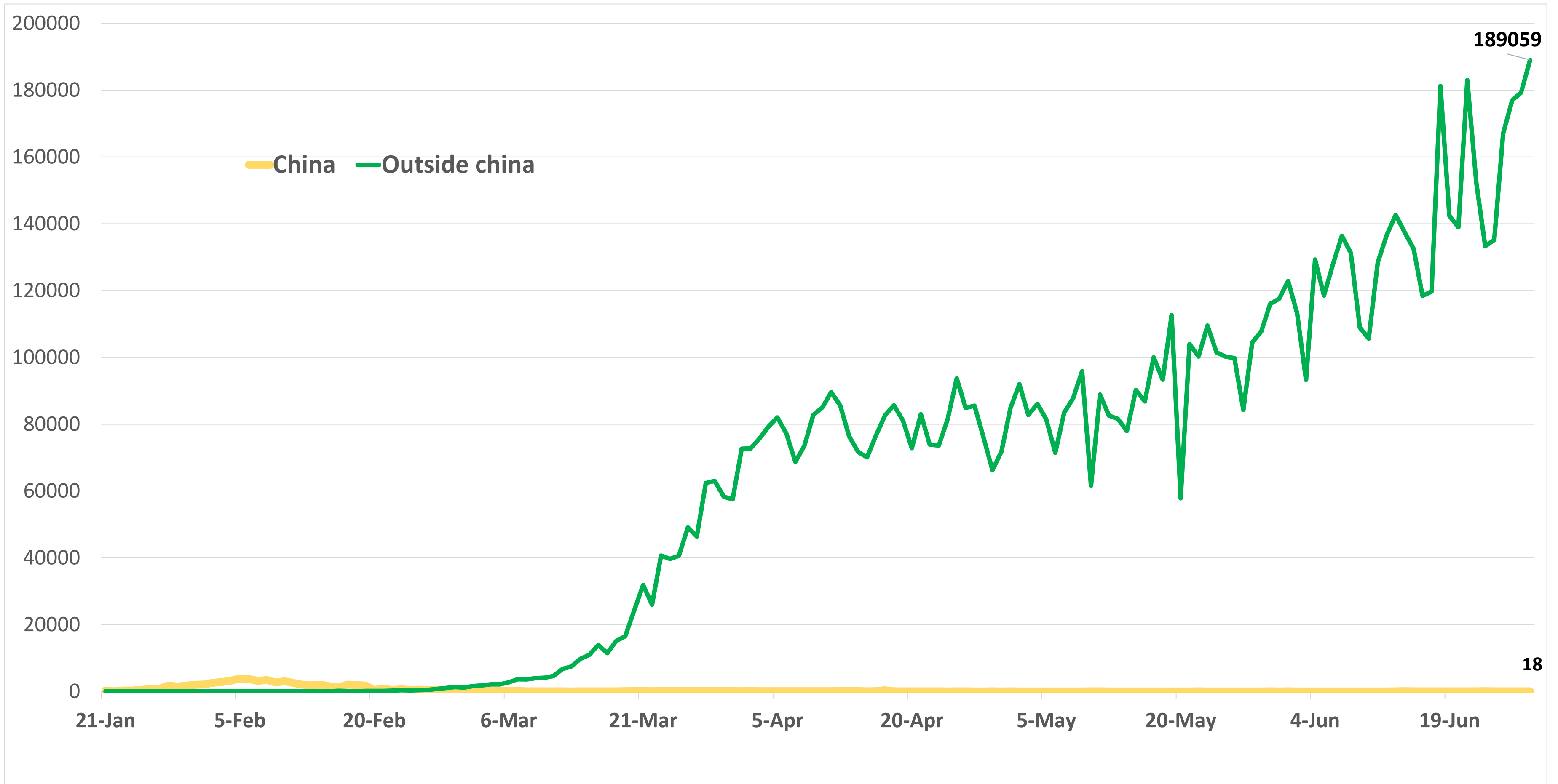
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Figure 2: Daily new infected COVID-19 cases reported between (January 21 to Jun 28, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

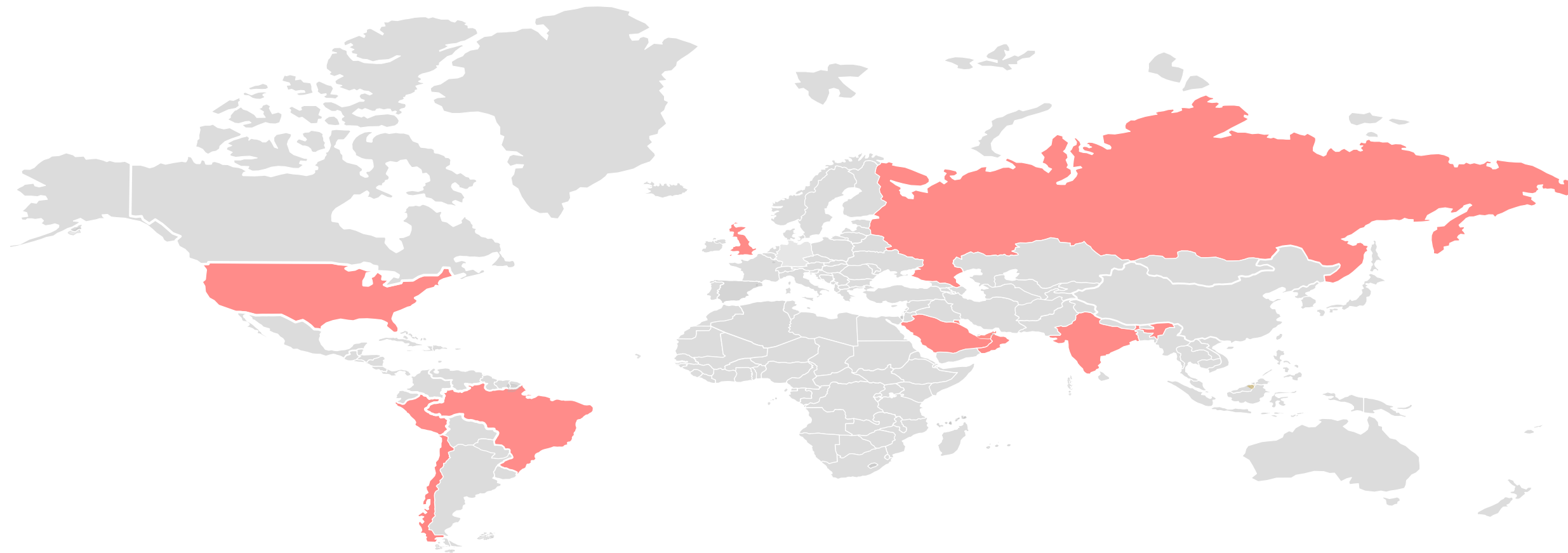
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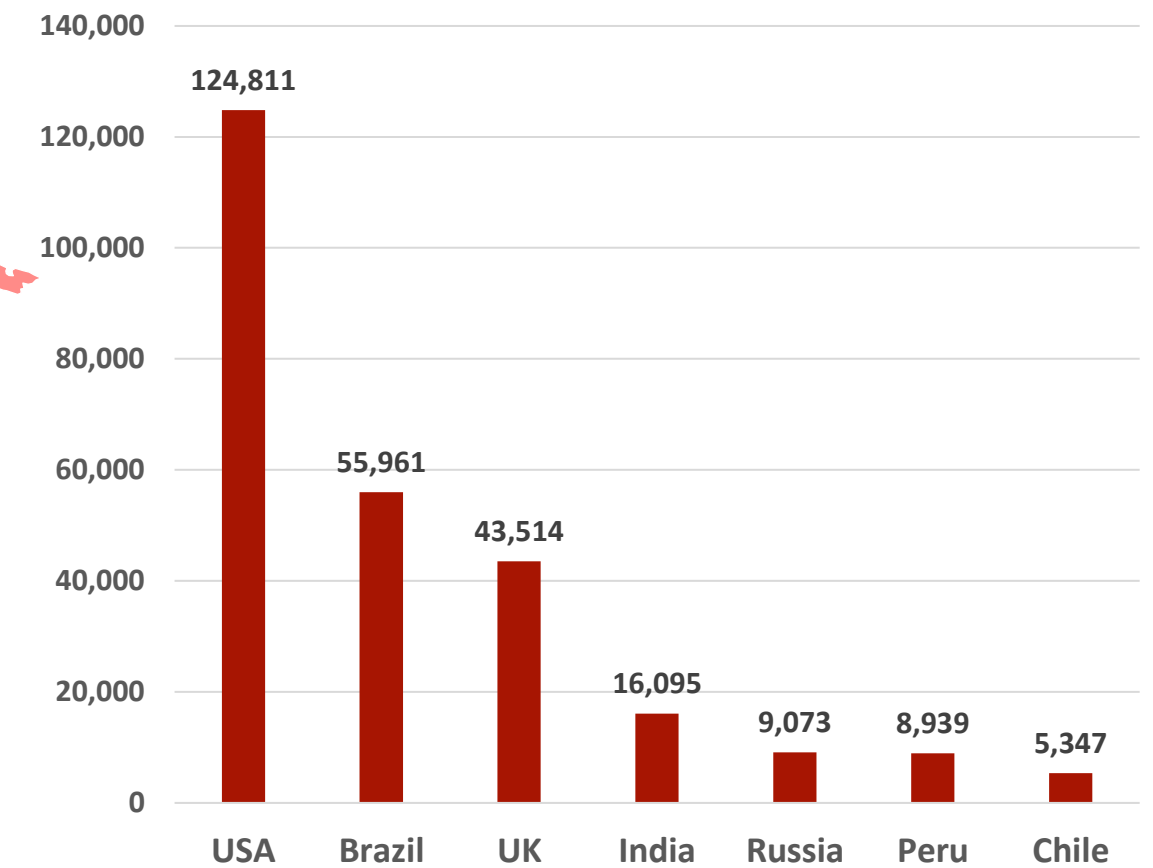
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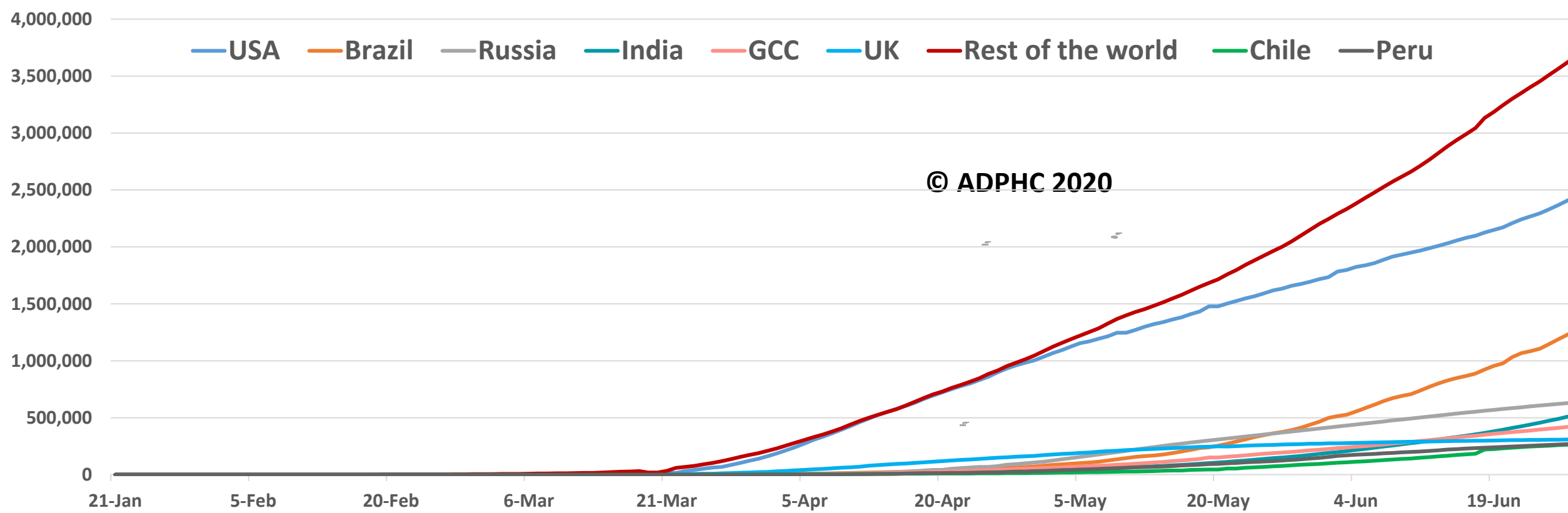
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 28, 2020).



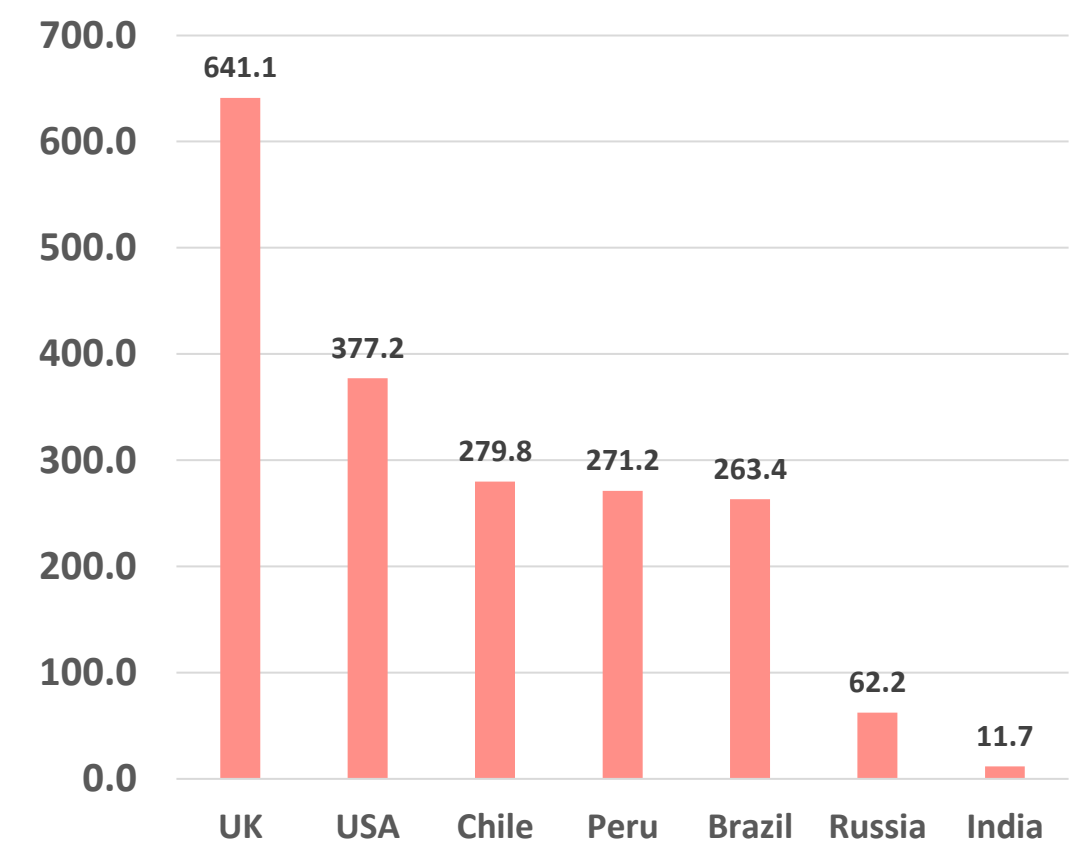
TOTAL DEATHS



TOTAL INFECTED CASES



DEATHS PER MILLION



Line graph published by Abu Dhabi Public Health Center 2020.

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

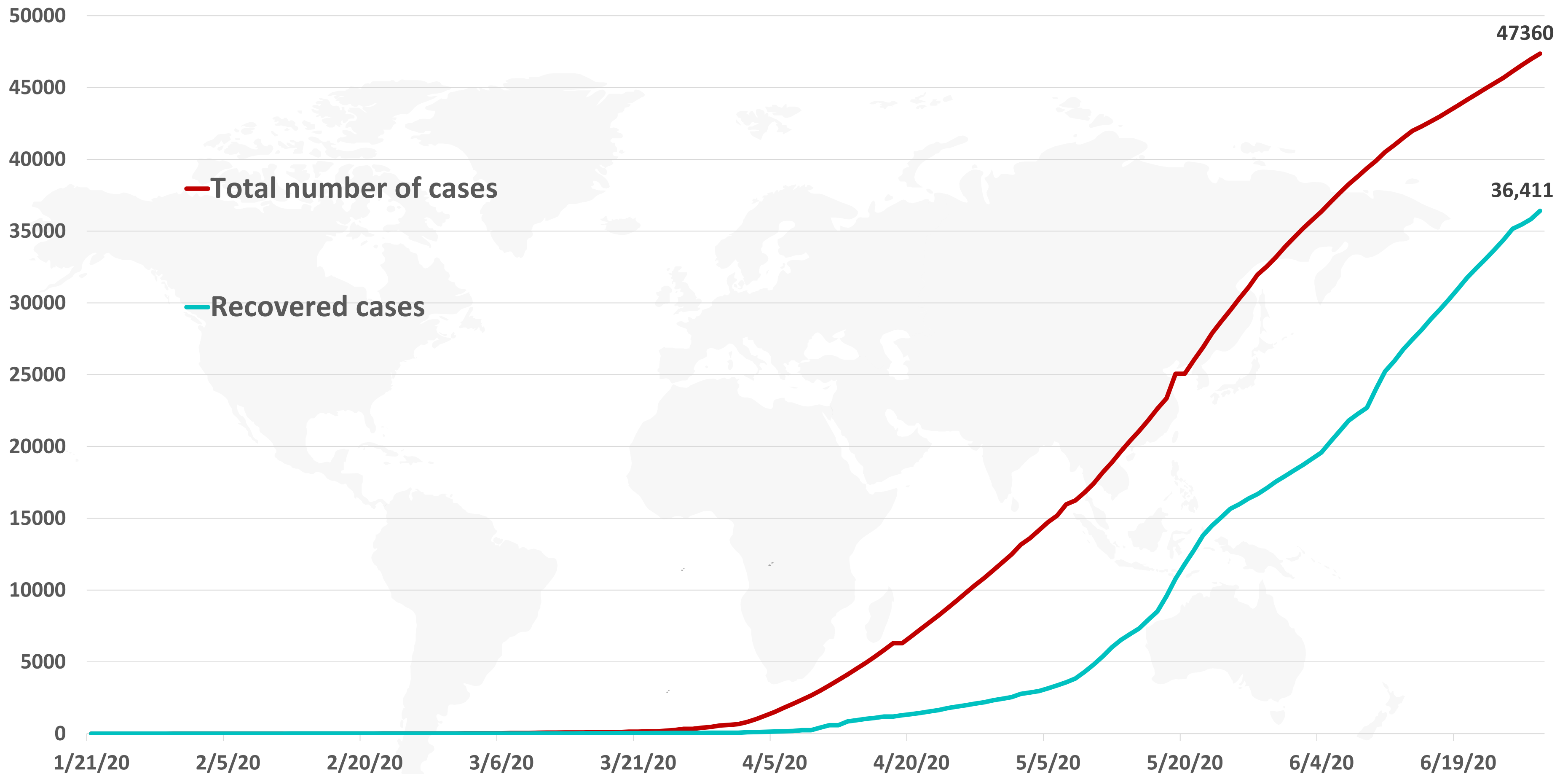
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Figure 4: Total number of COVID-19 infected and recovered cases in UAE over time



Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

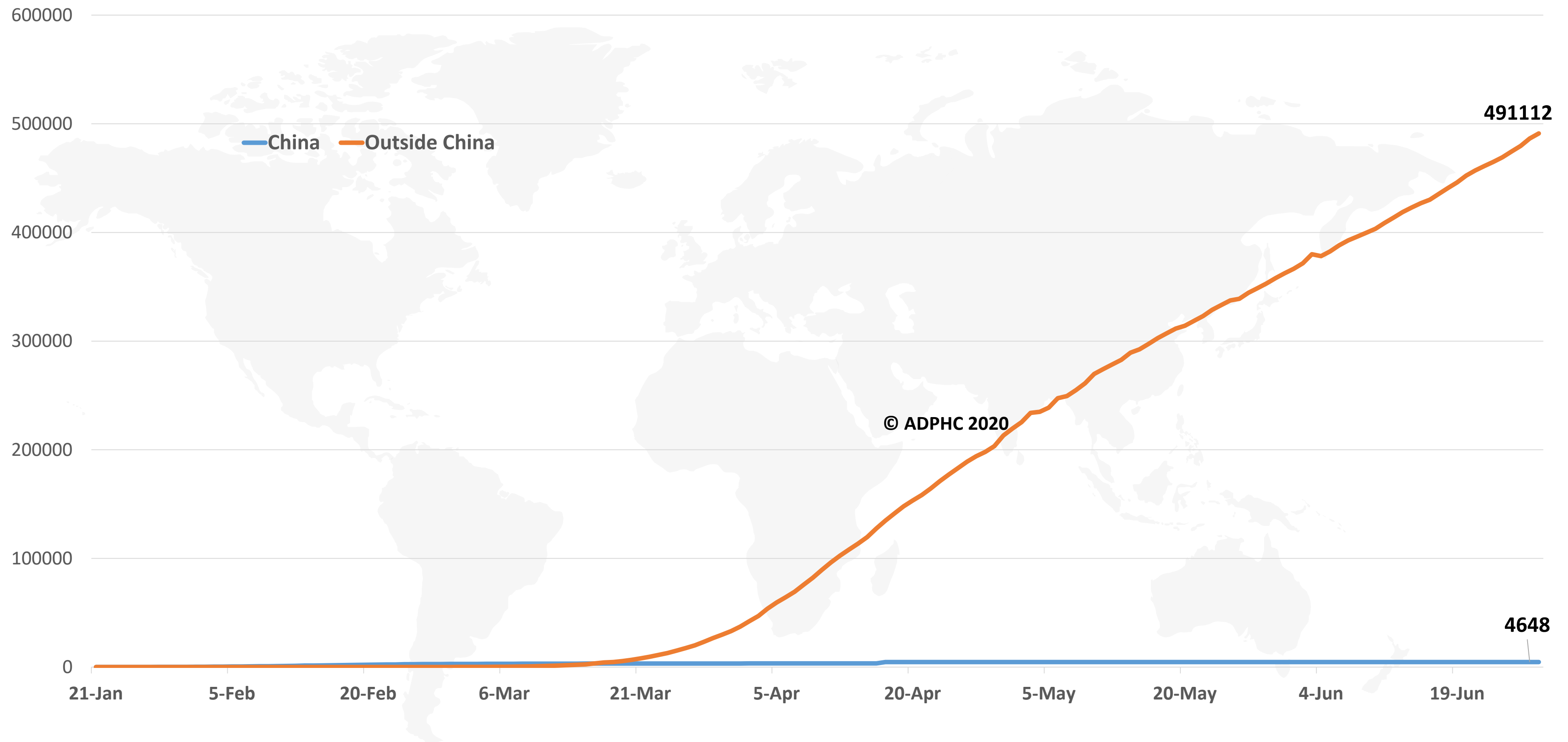
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Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to Jun 28, 2020).



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Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

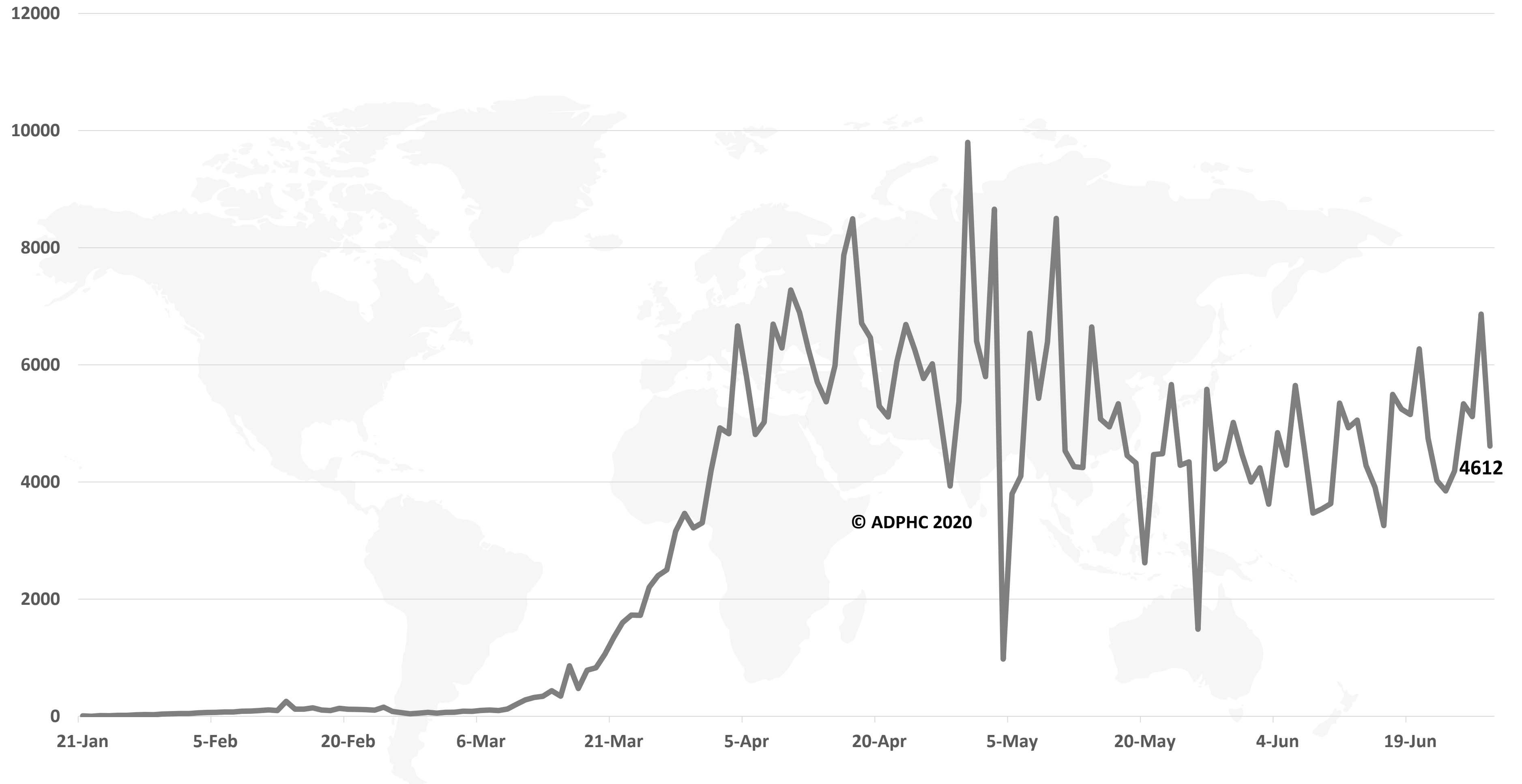
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Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 28, 2020).



Line graph published by Abu Dhabi Public Health Center 2020.

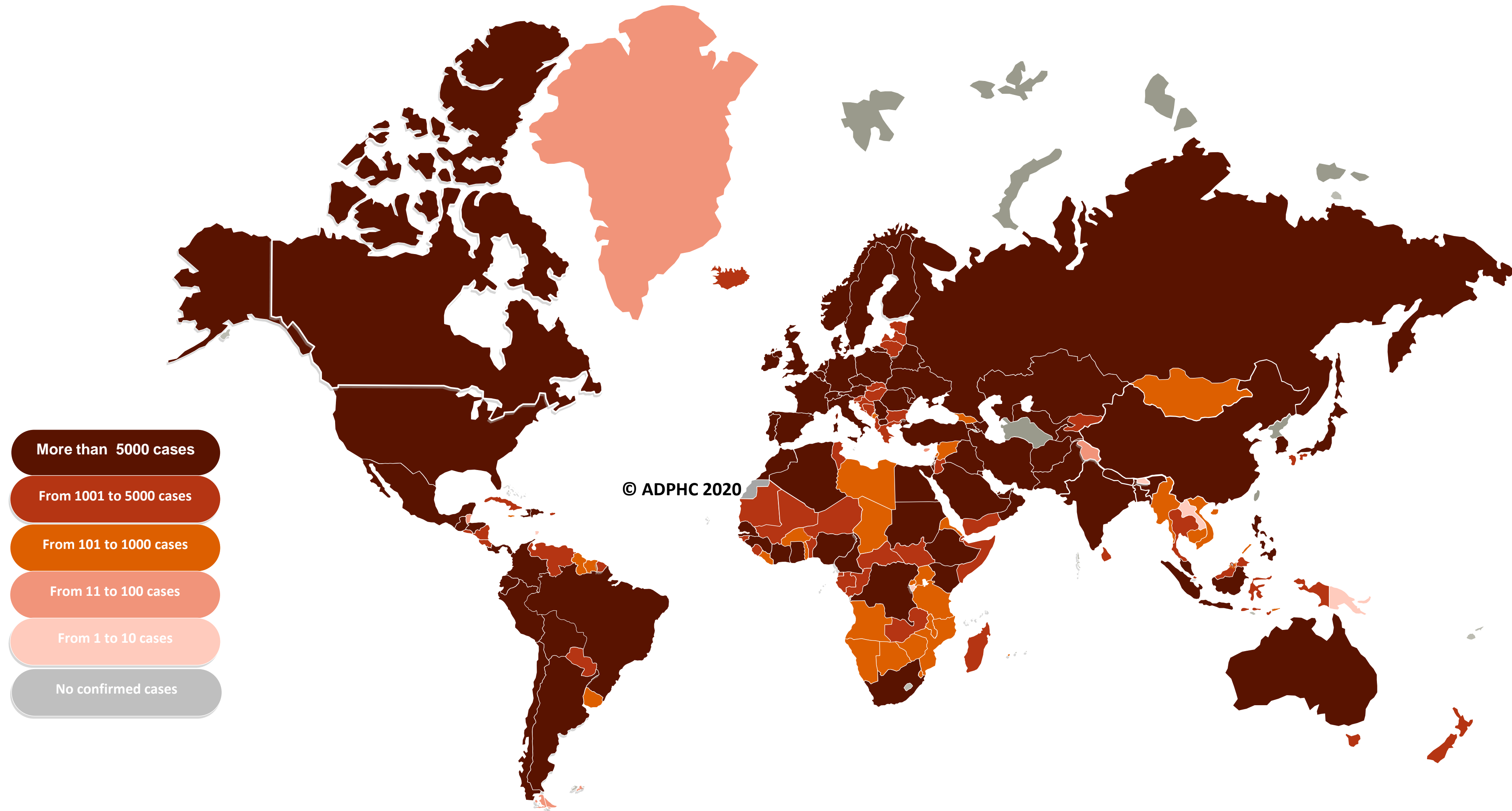
Data resources: [WHO](#)

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Figure 7a : Global distribution of COVID-19 cases (Jun 28, 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 Jun 28, 2020)



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/)

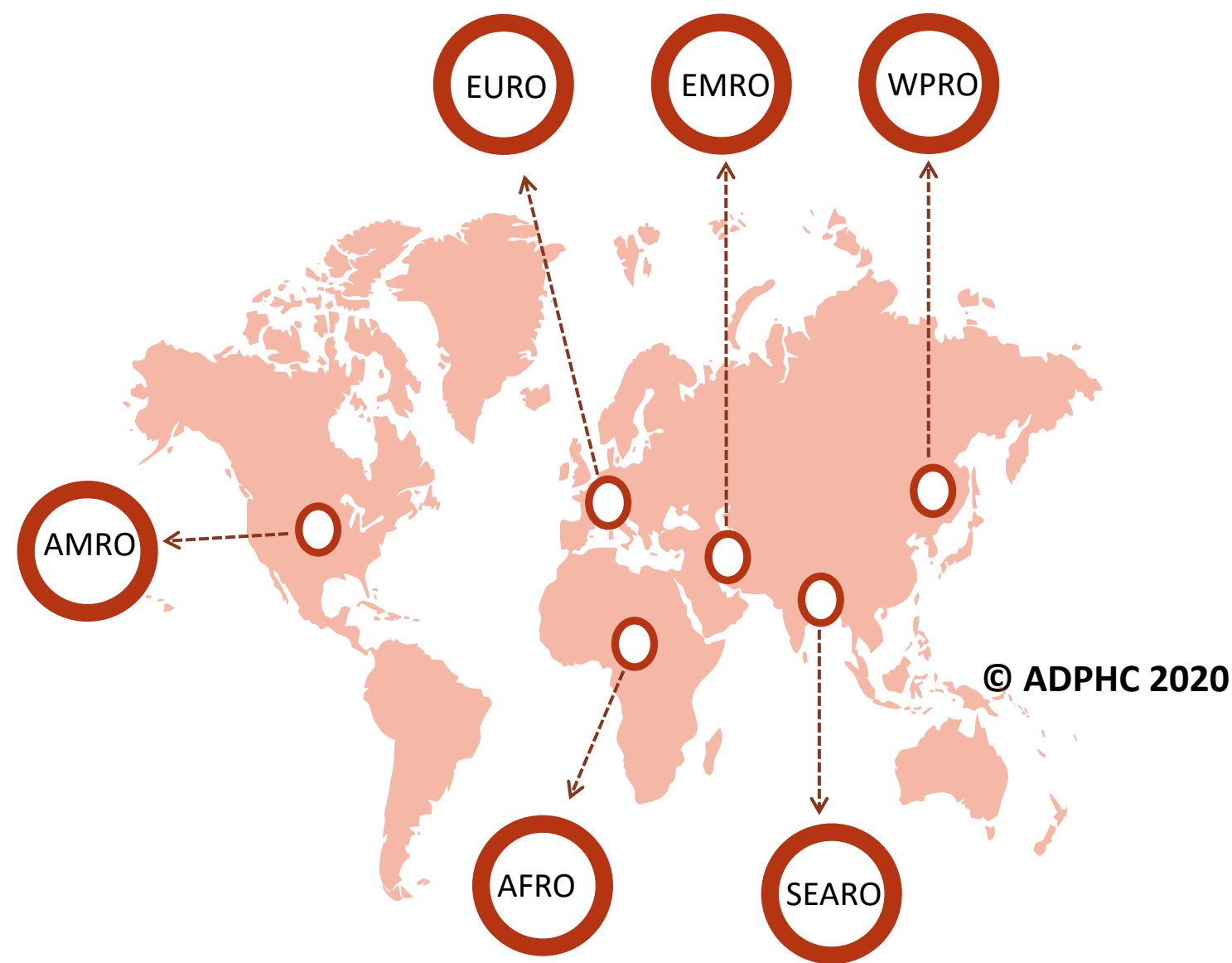
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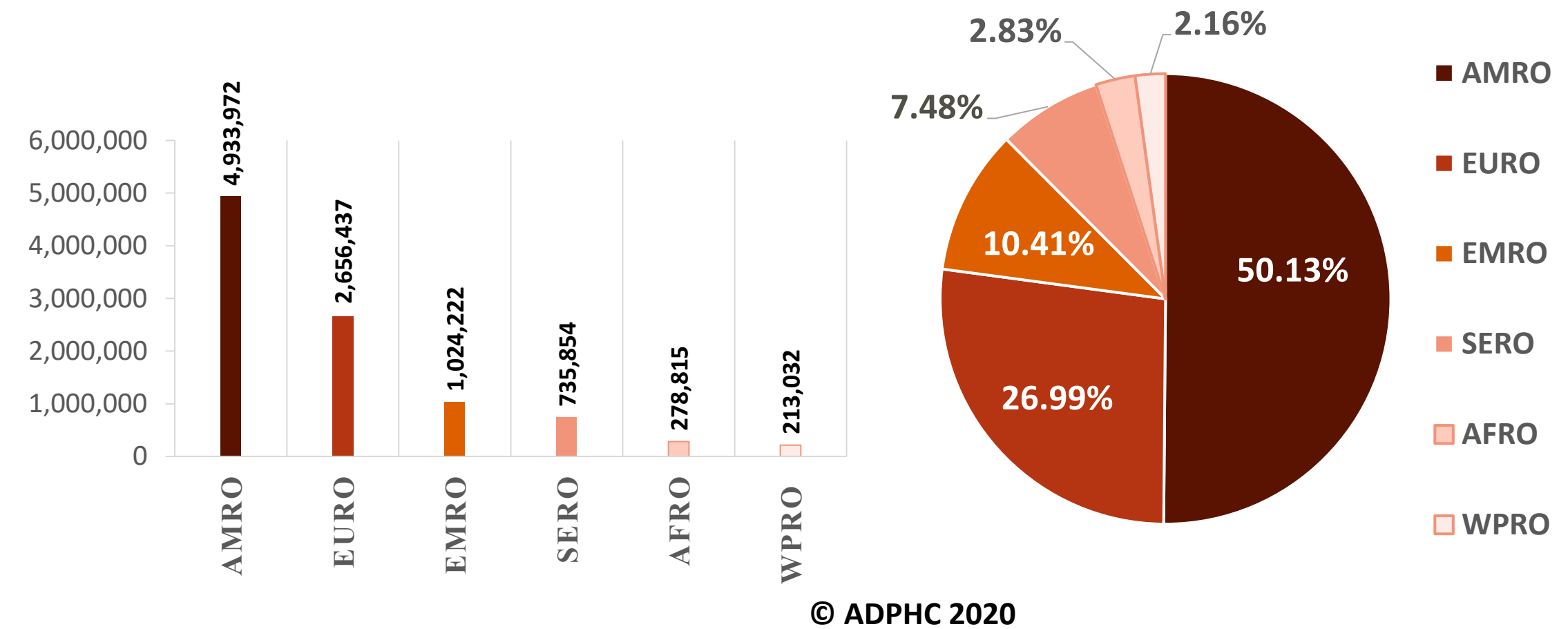
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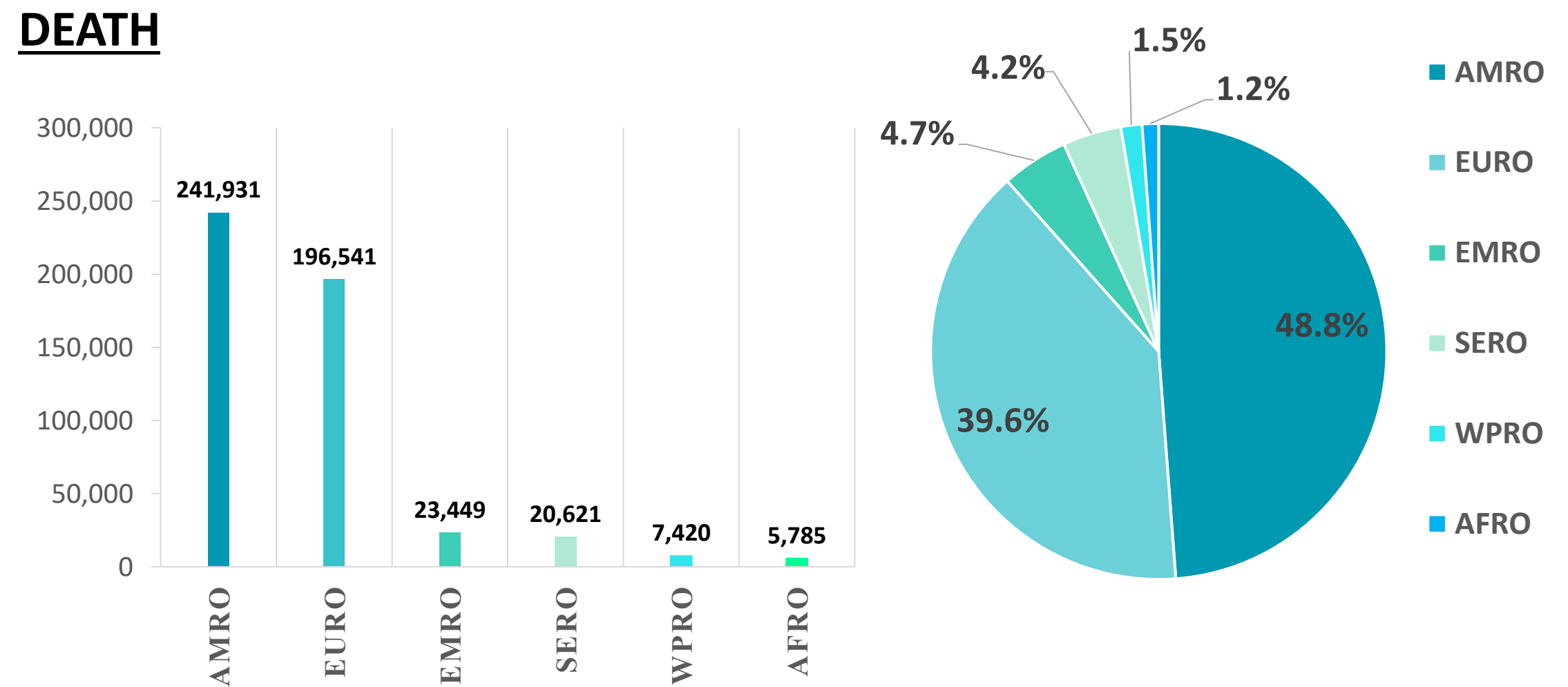
Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 28, 2020)



INFECTED



DEATH



Graphs published by Abu Dhabi Public Health Center 2020.

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

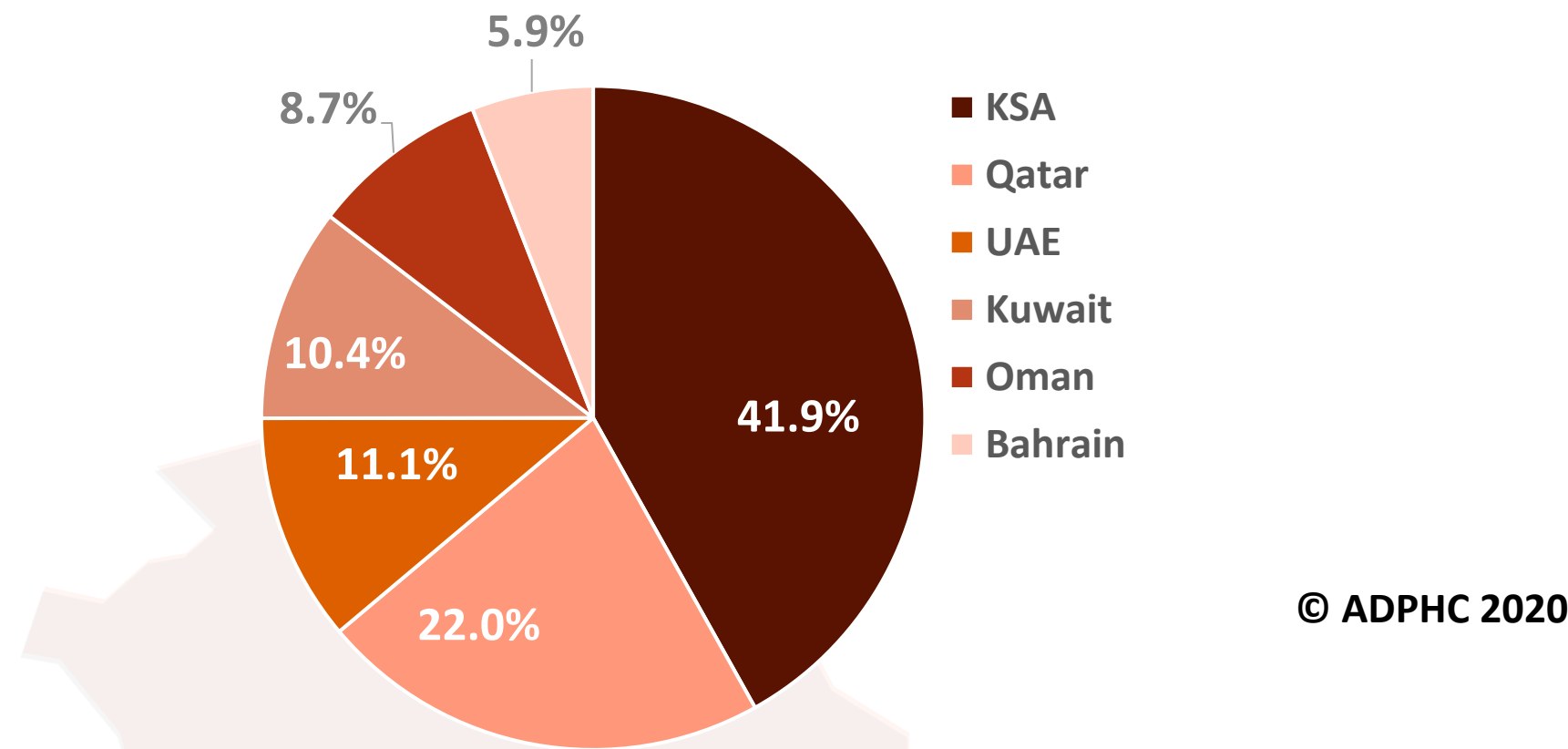
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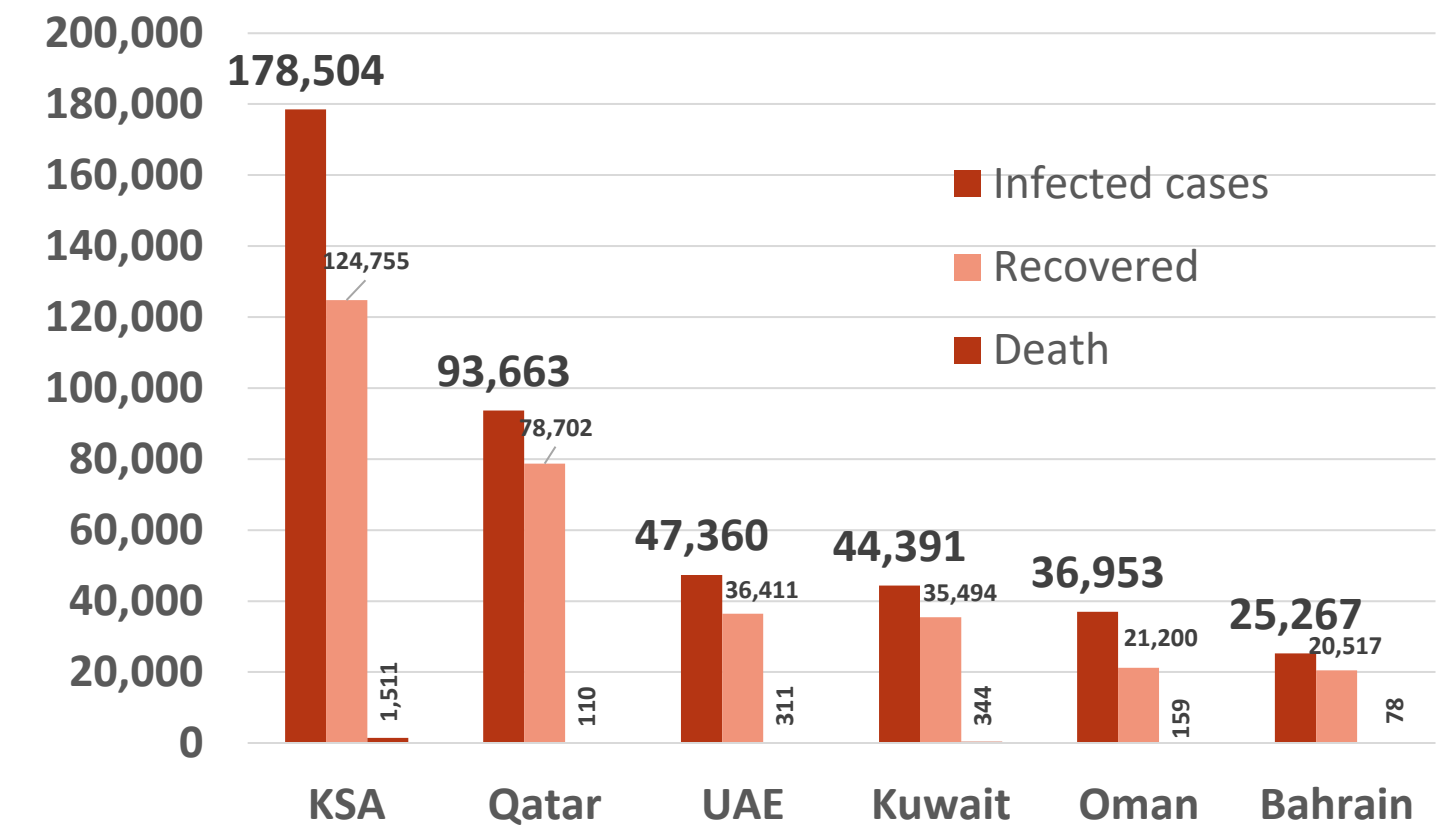
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Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 28, 2020)

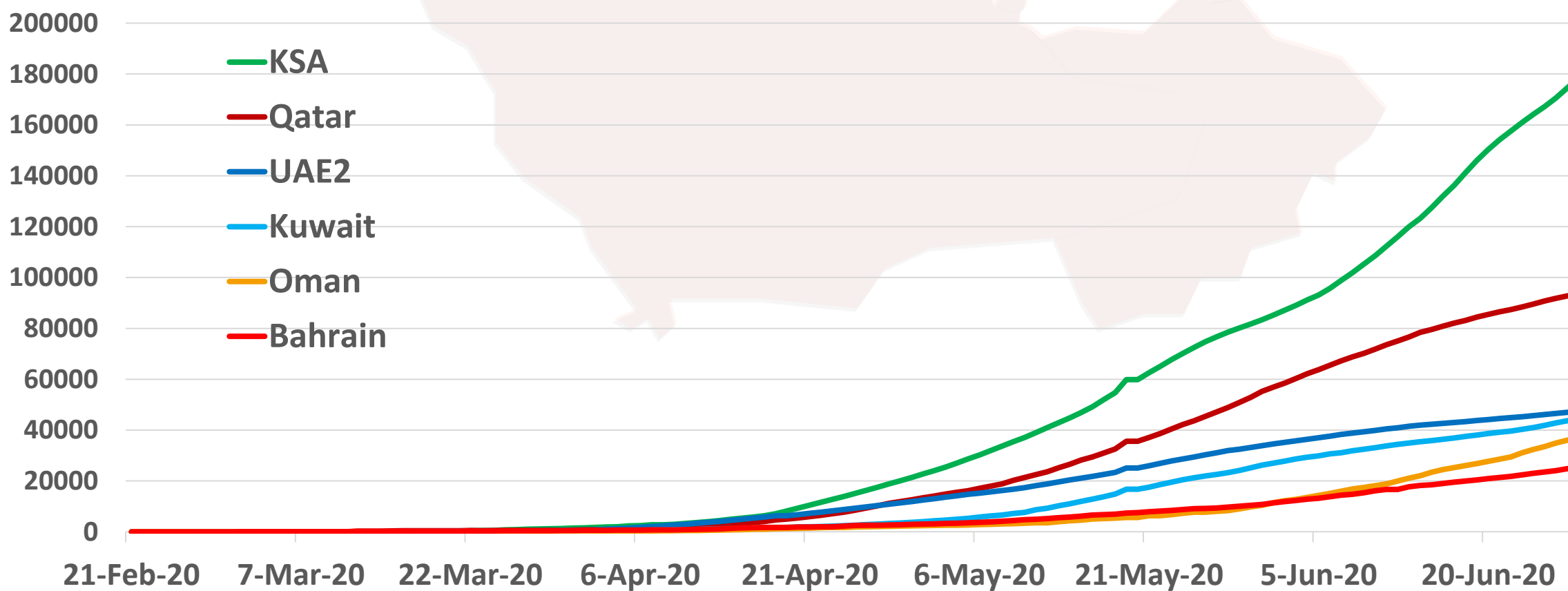
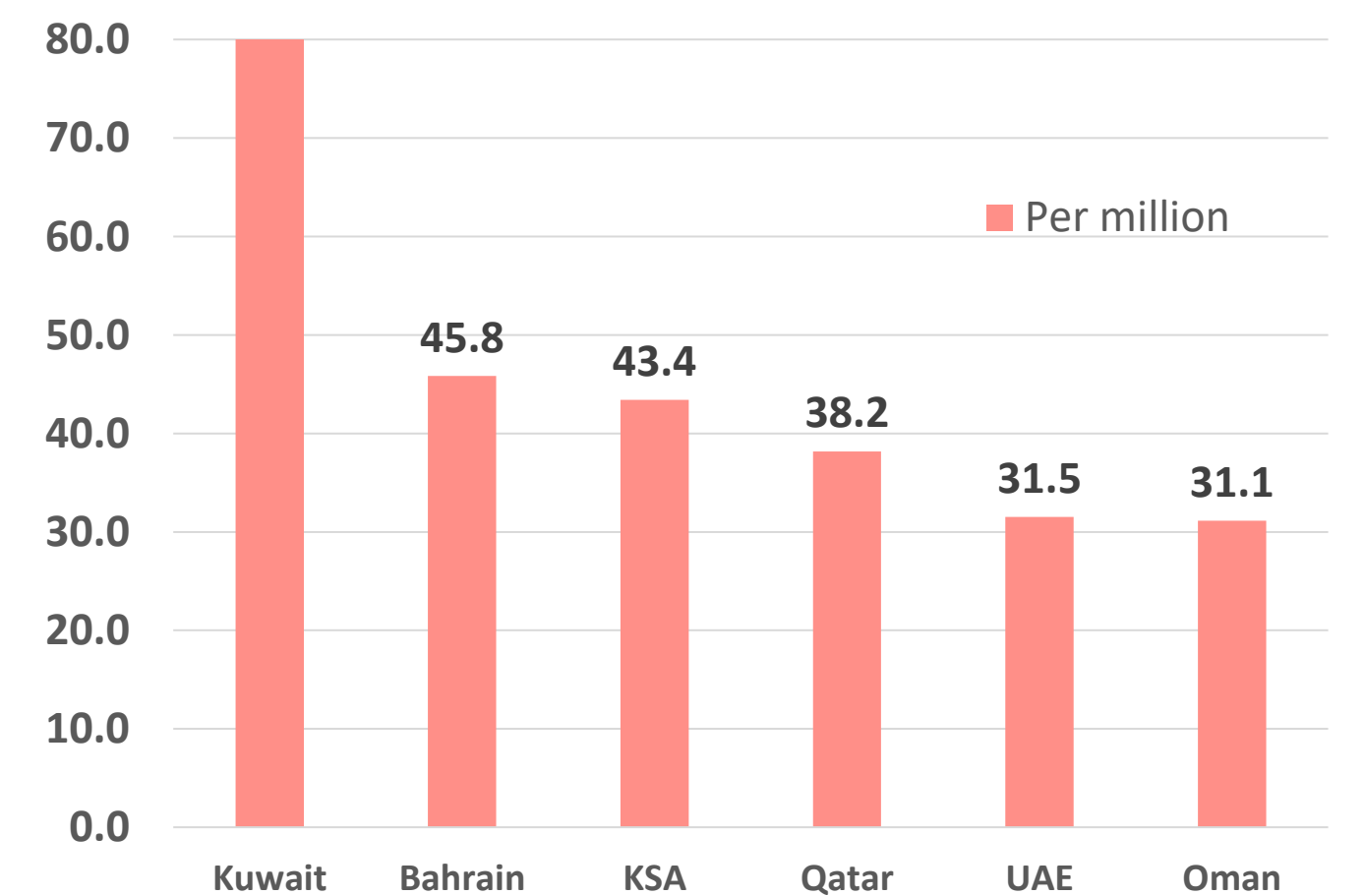
TOTAL NUMBER OF INFECTED CASES



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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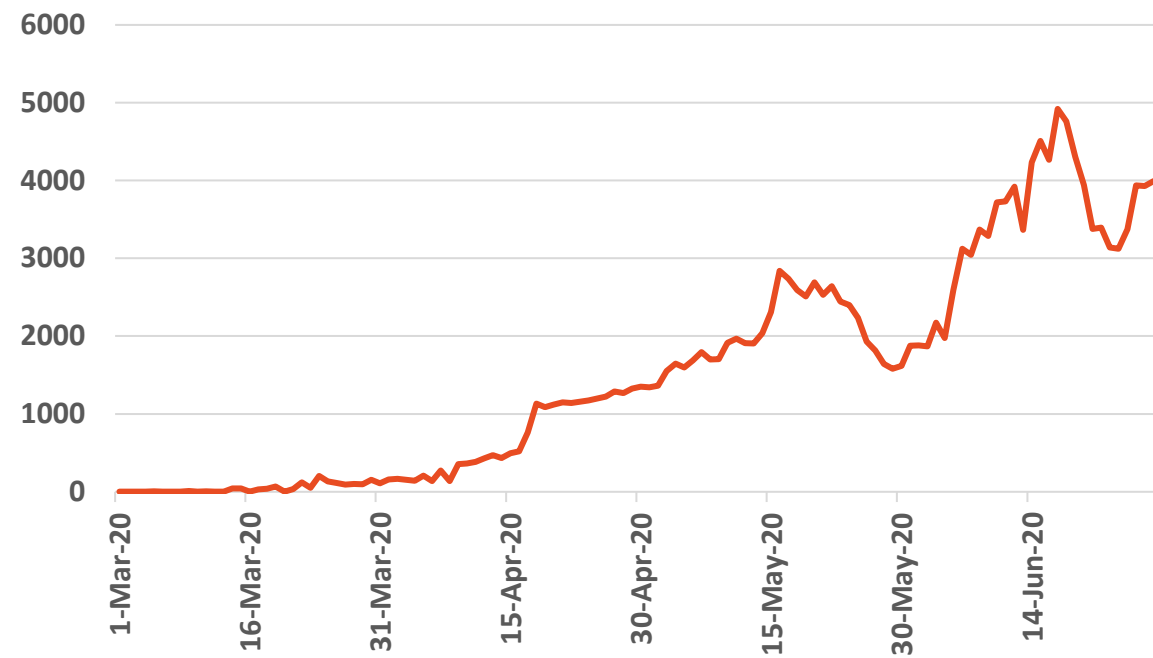
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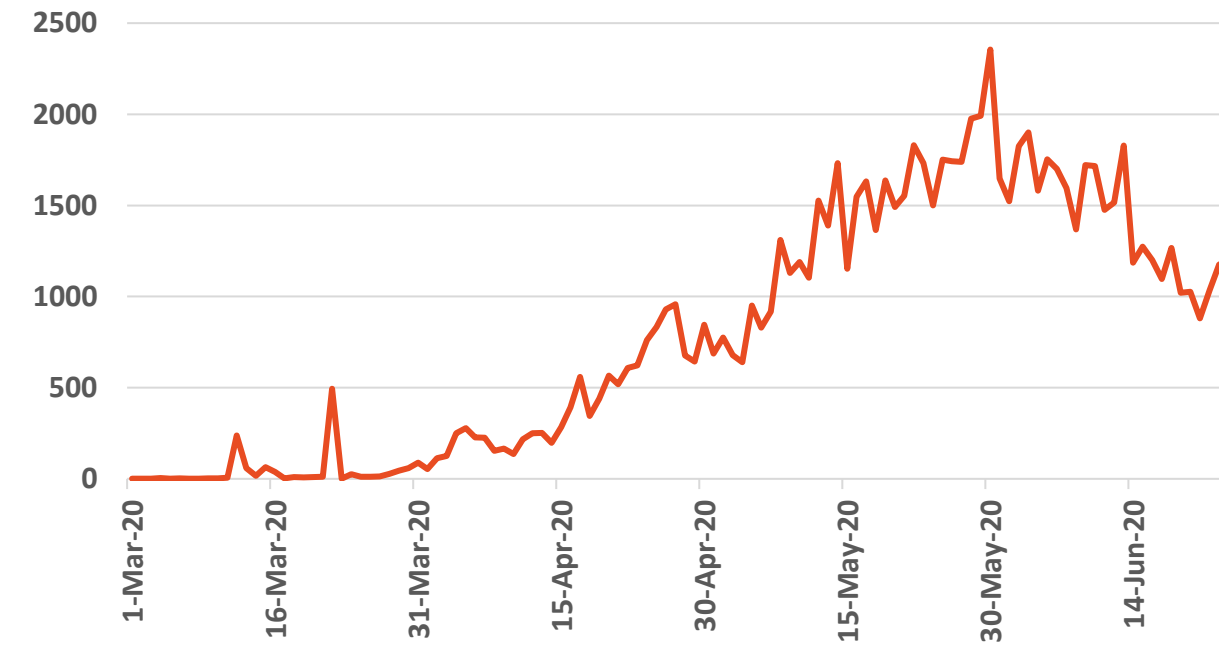
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 28, 2020)

KSA



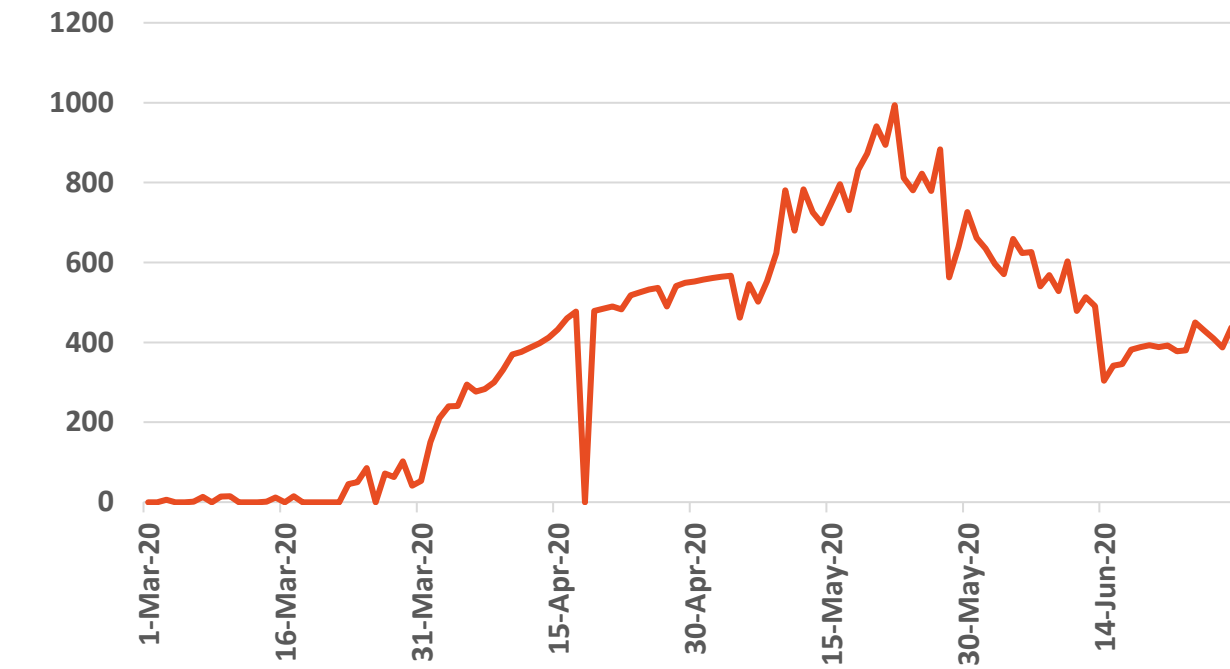
Source : KSA ministry of health

Qatar



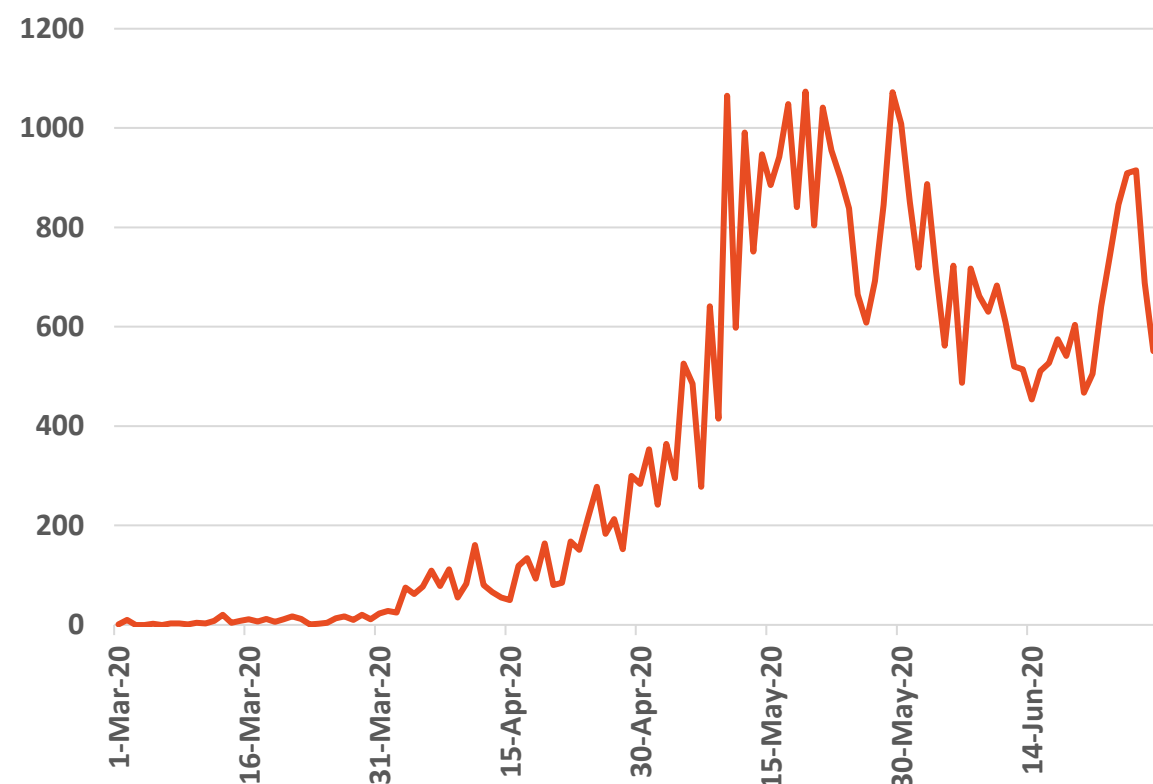
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

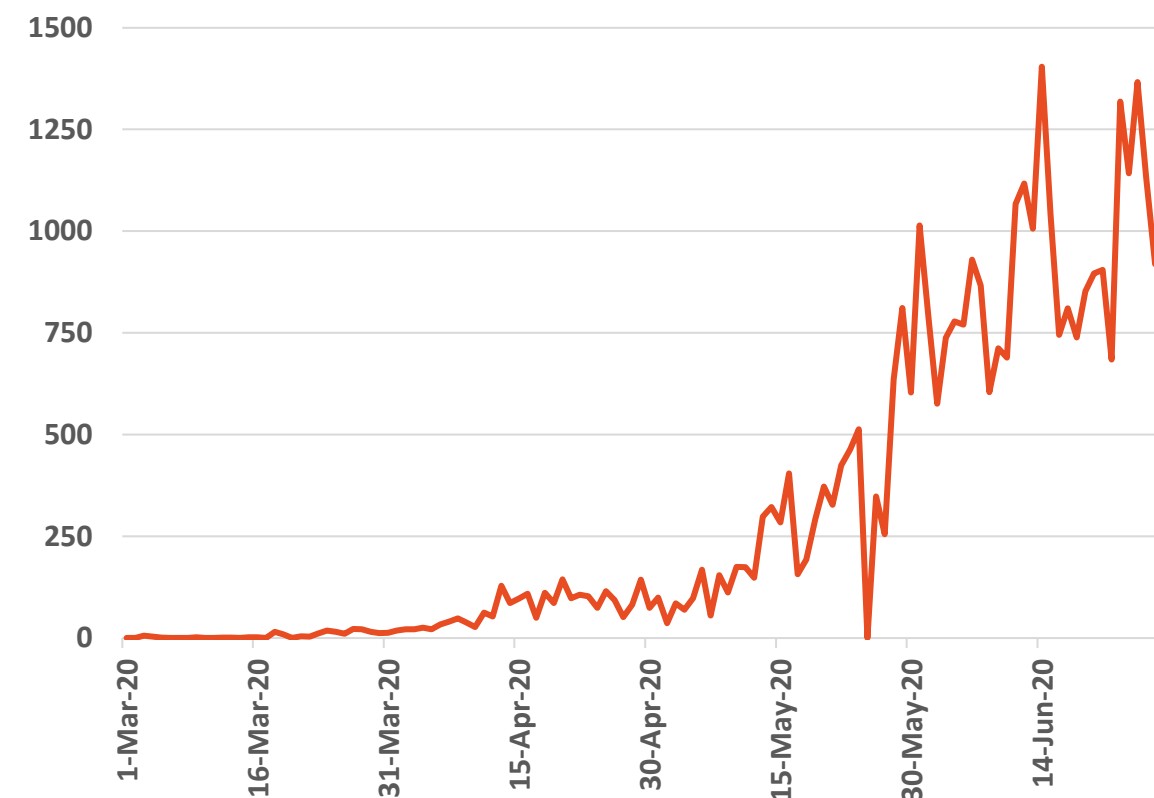
Kuwait



Source : Kuwait ministry of health

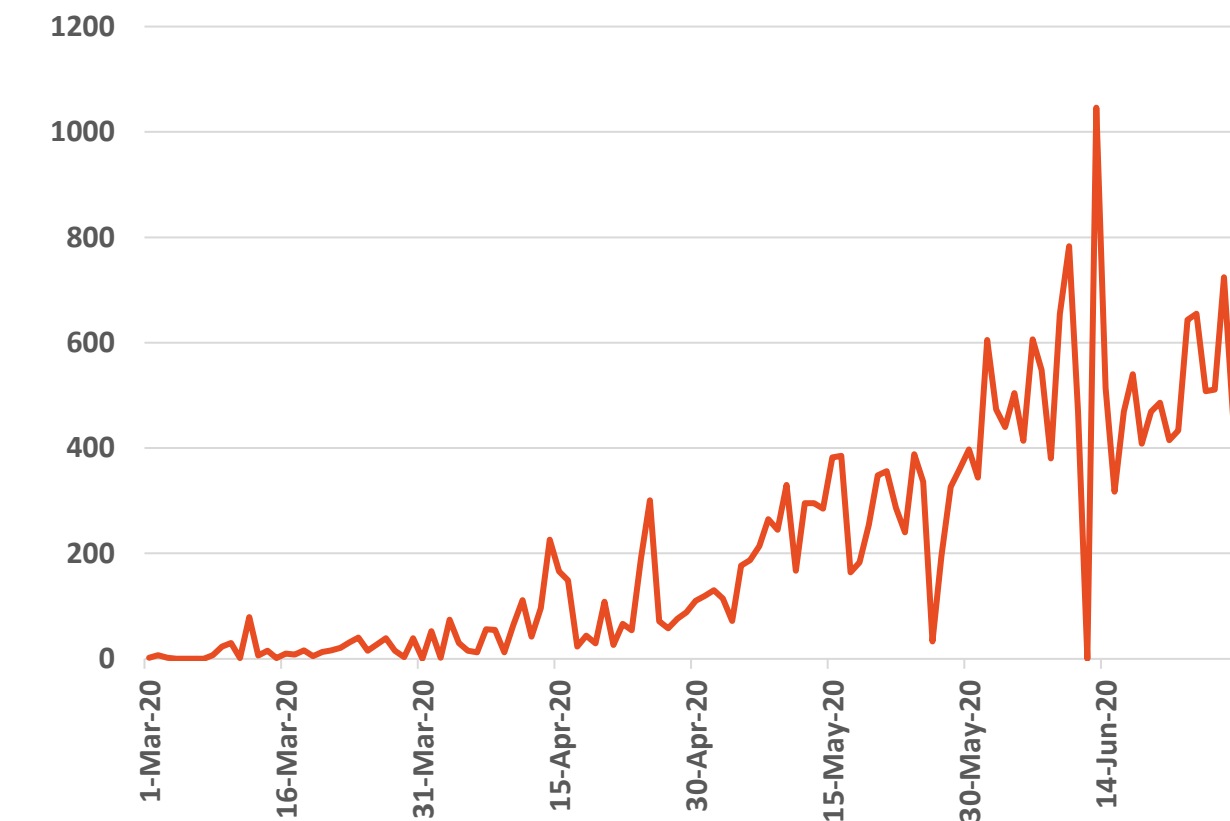
Oman

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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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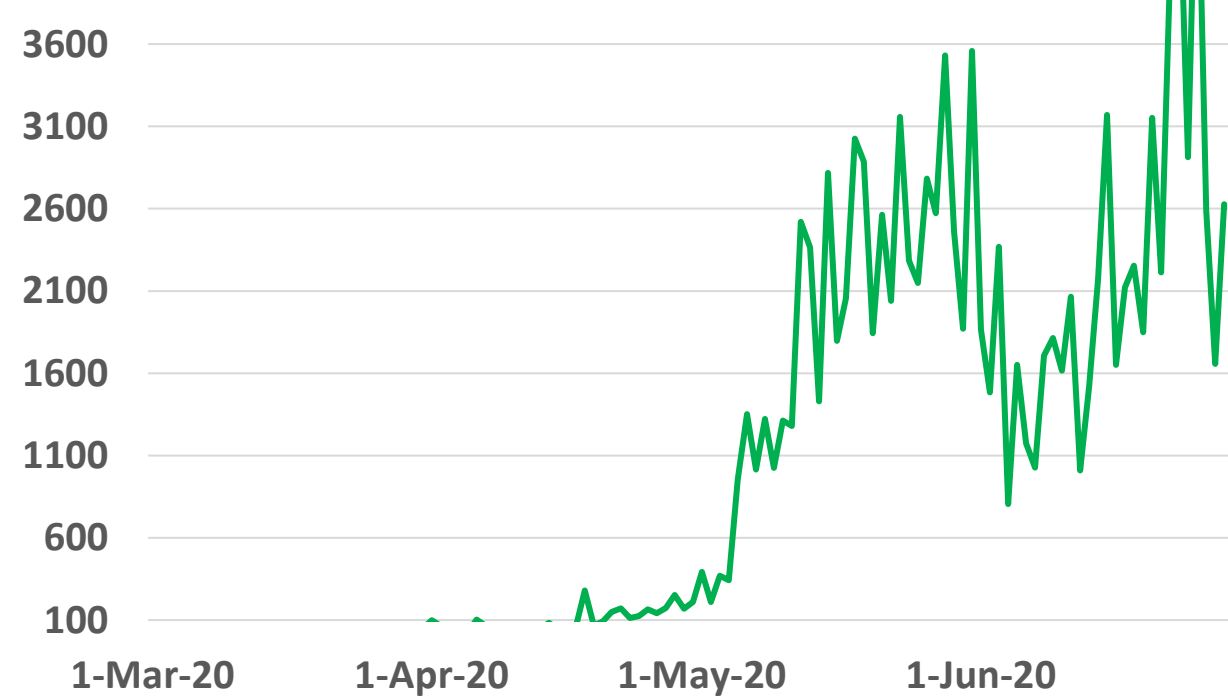
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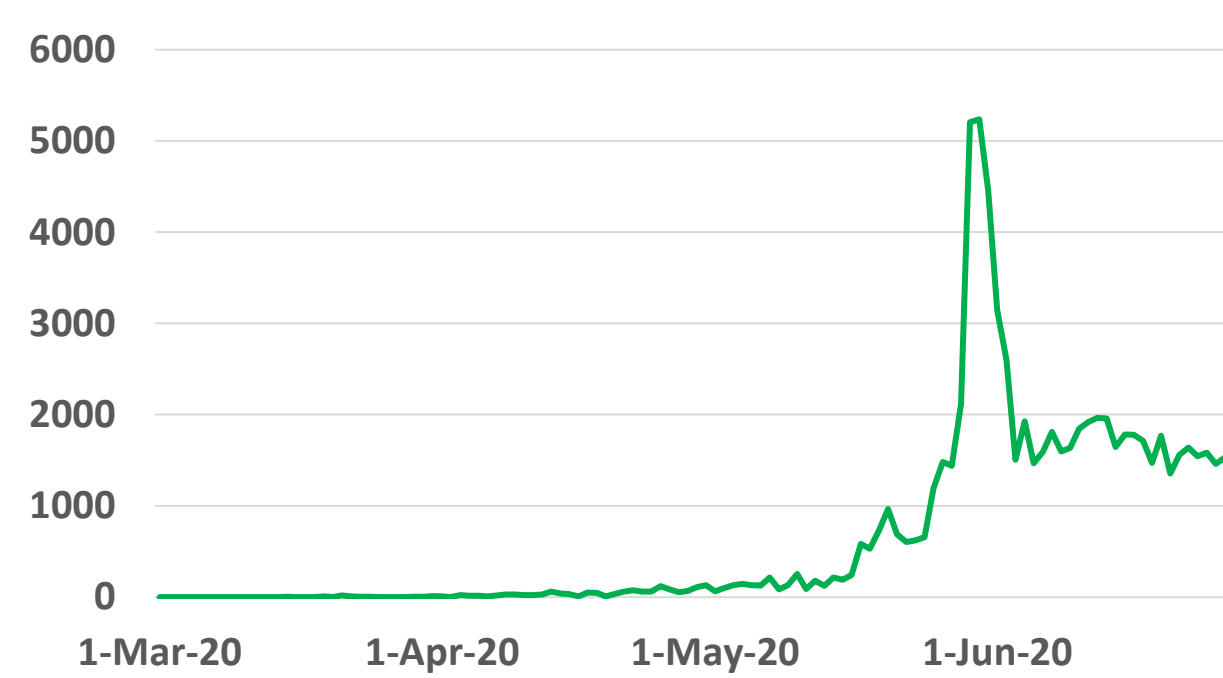
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 28, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

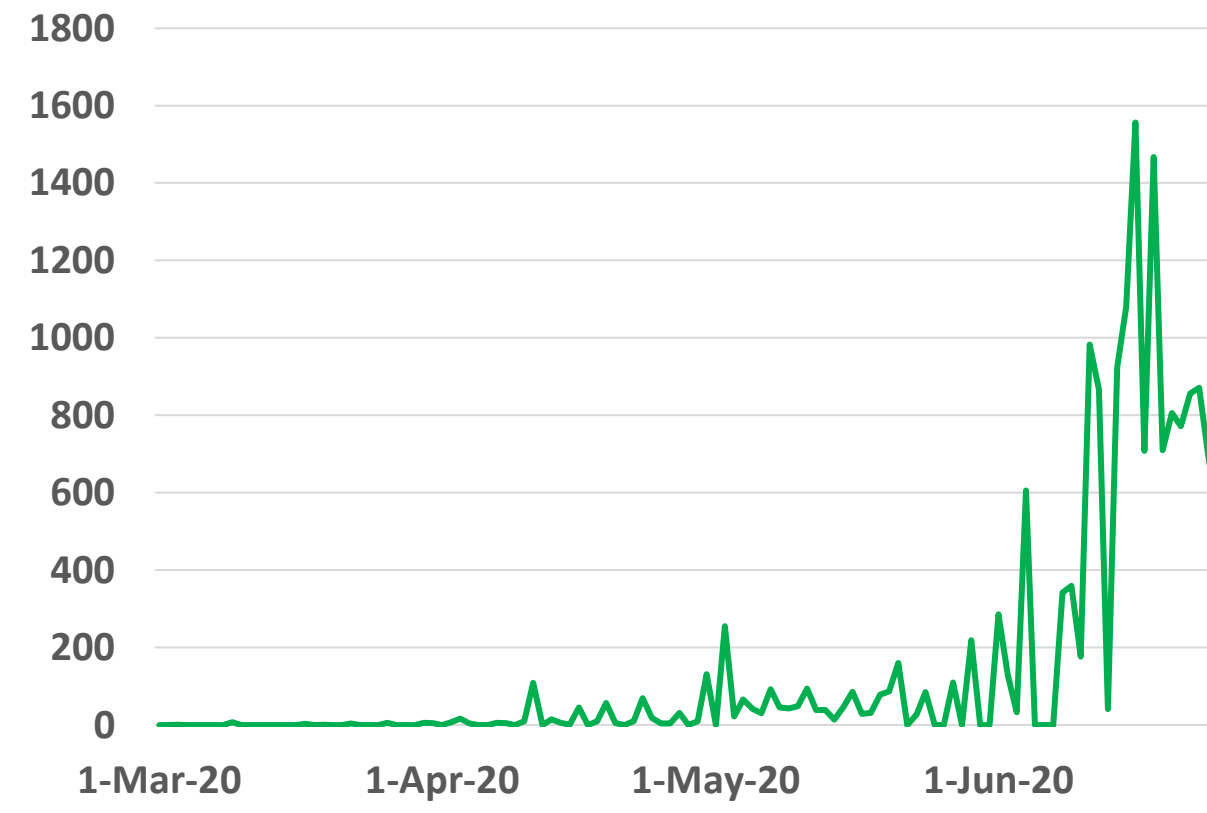
Kuwait



Source : Kuwait ministry of health

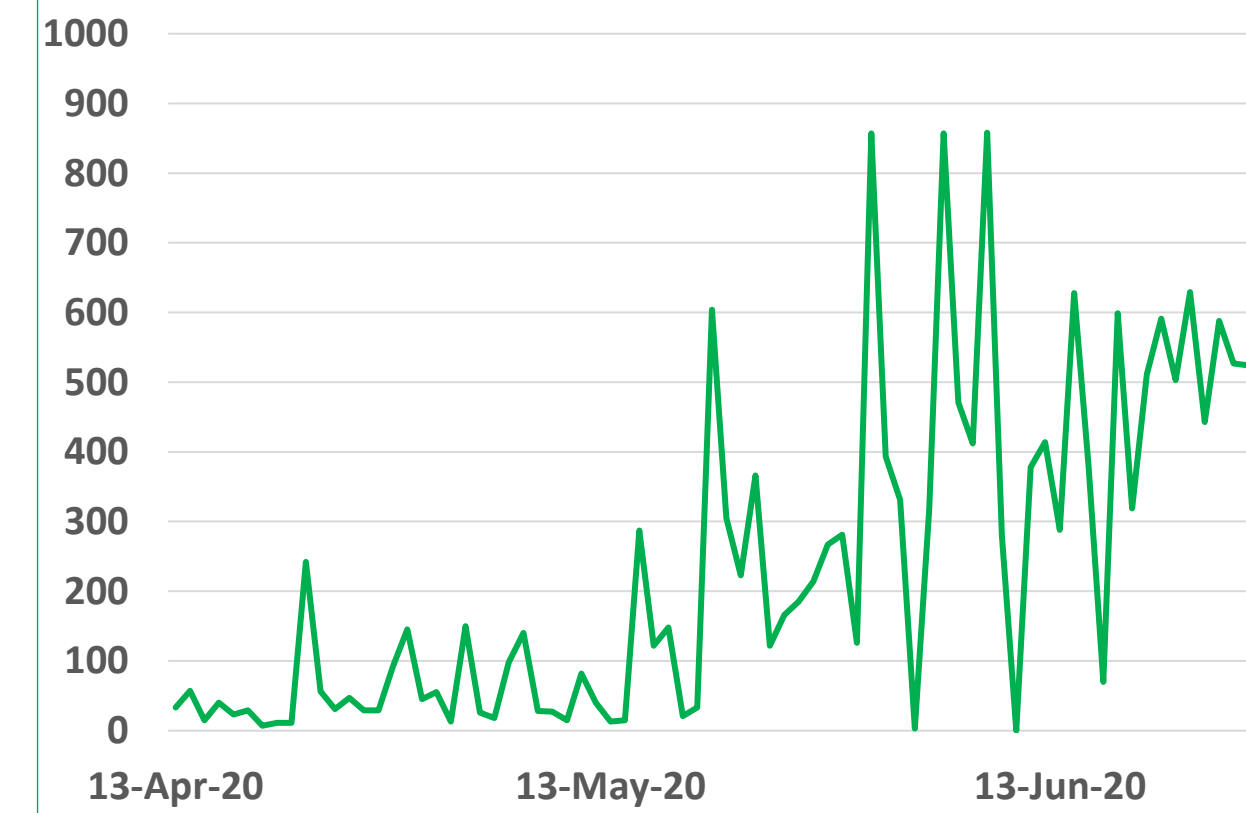
Oman

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Source : Oman ministry of health

Bahrain



Source : GCCStat

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Data resources: [WHO](#)

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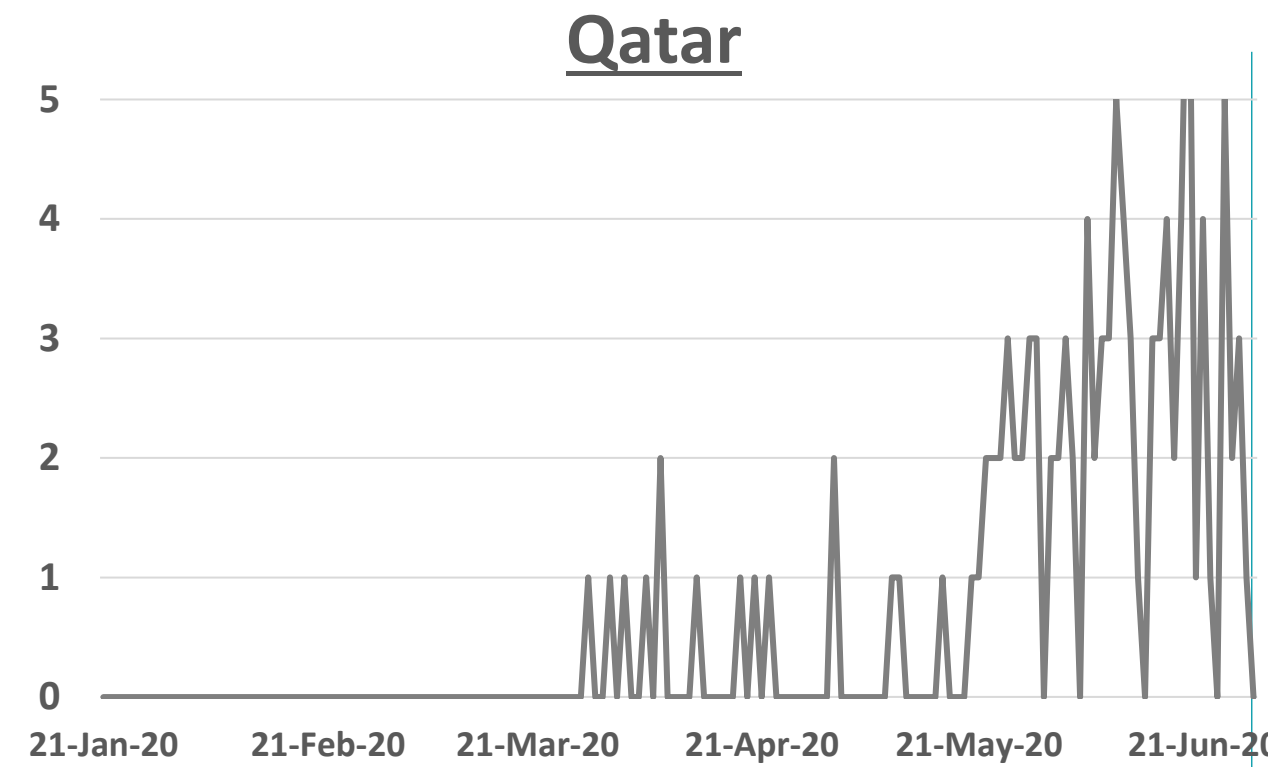
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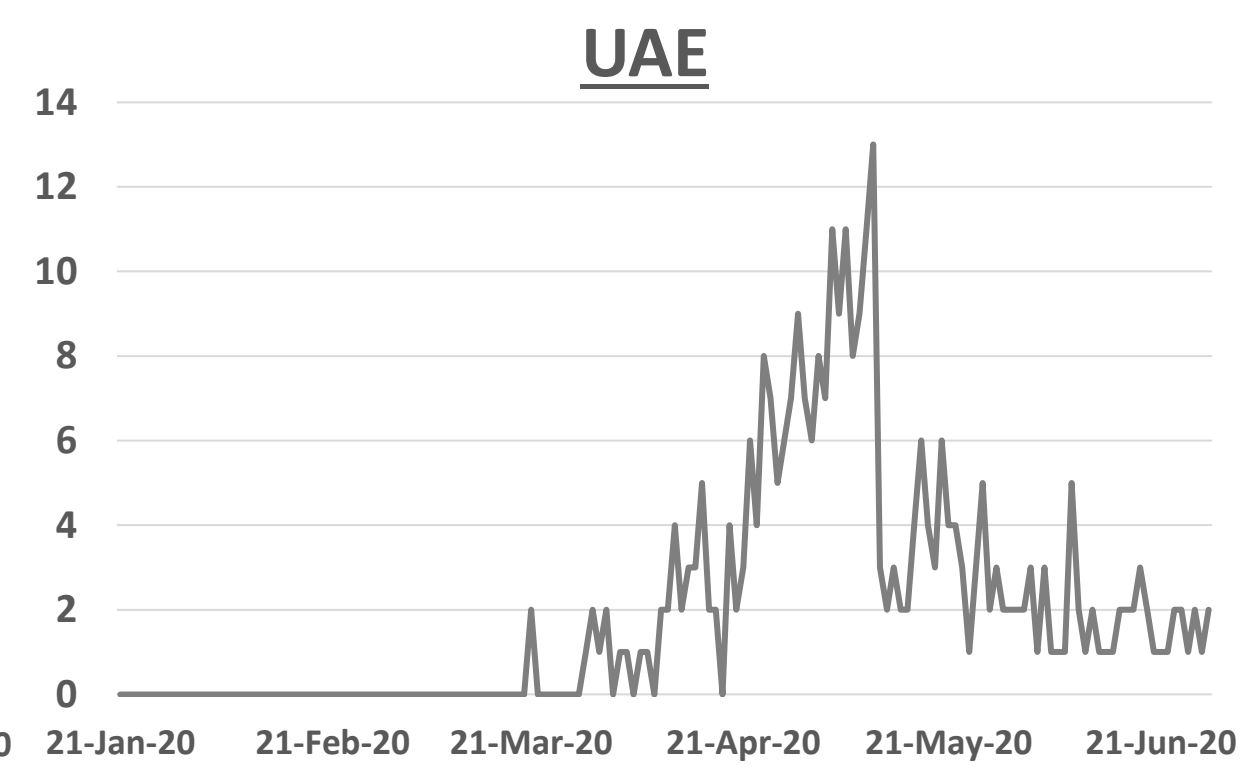
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 28, 2020)



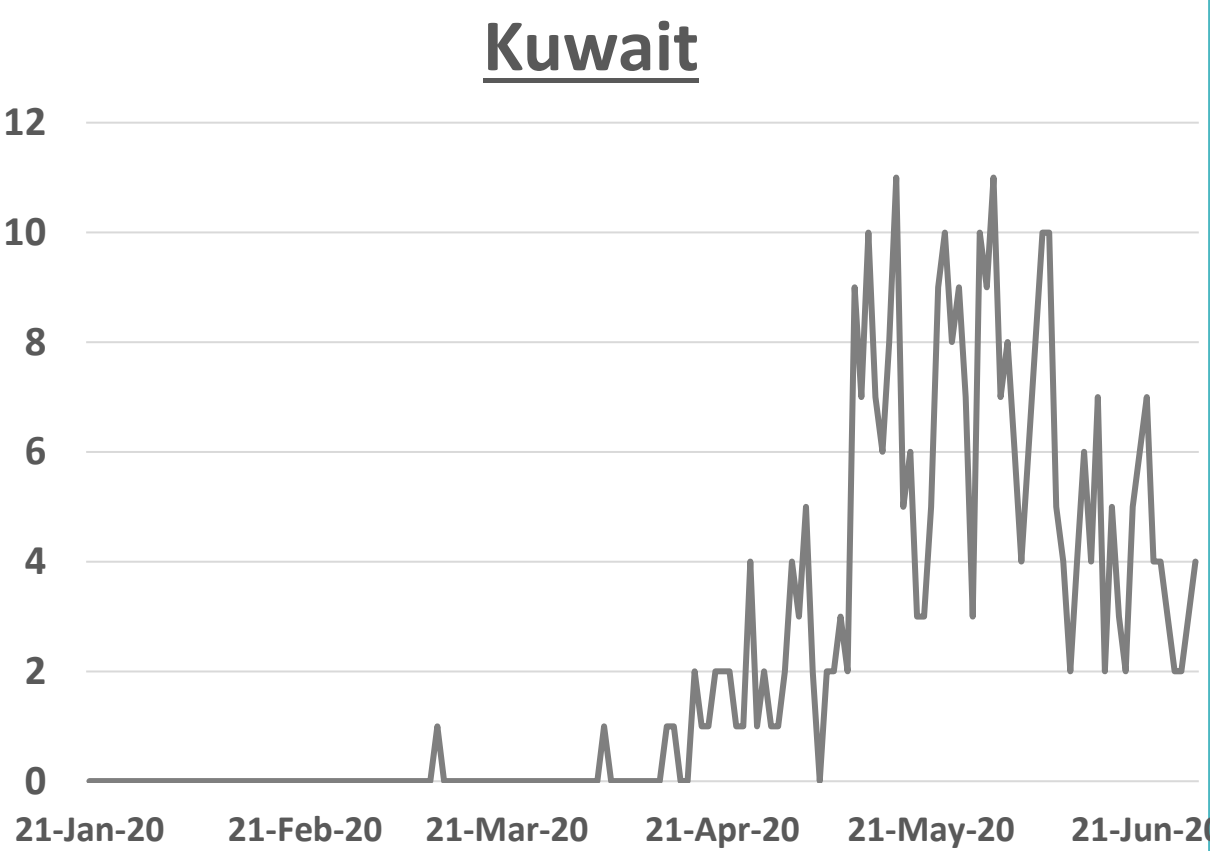
Source : KSA ministry of health



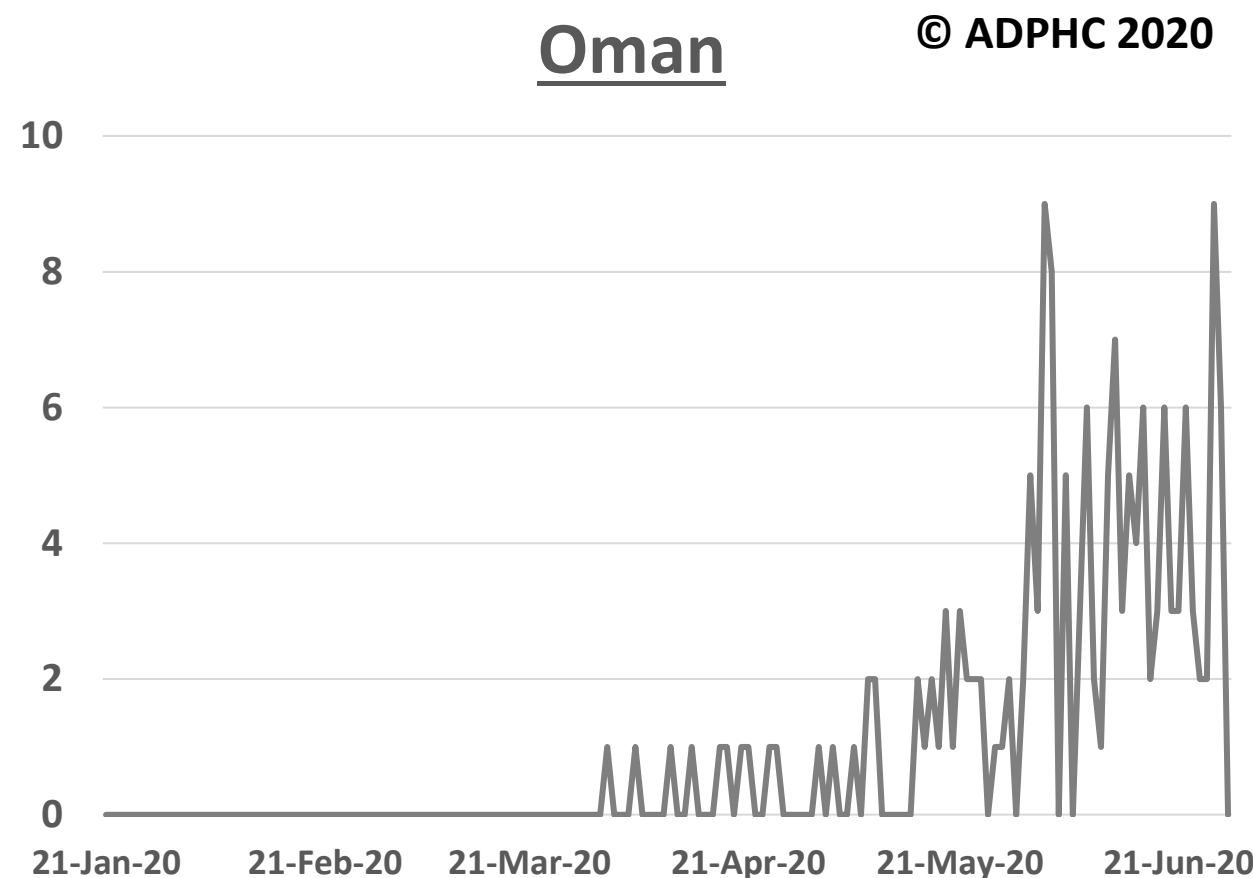
Source : Qatar ministry of health



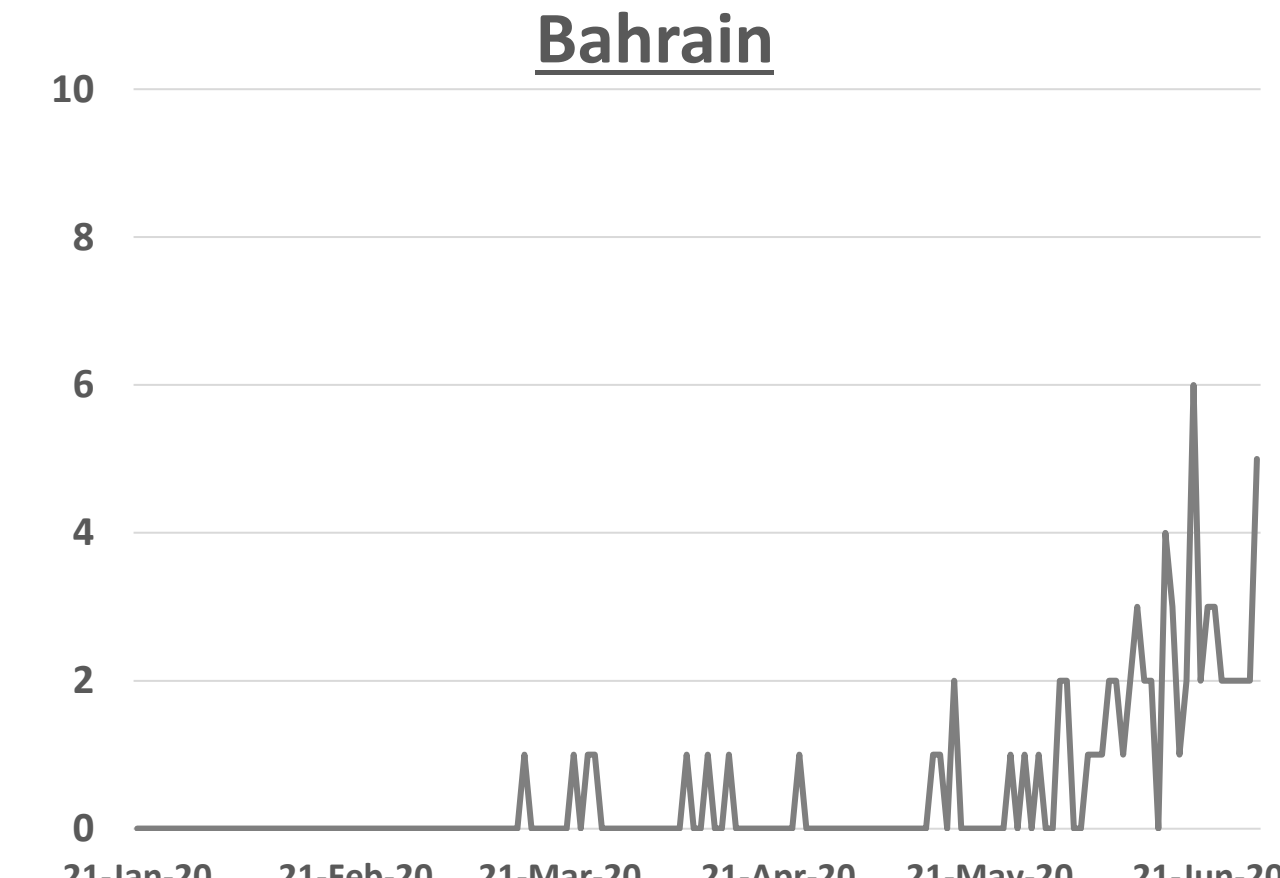
Source : National Emergency Crisis and Disaster Management Authority



Source : Kuwait ministry of health



Source :Oman ministry of health



Source :WHO





Article 1: Severe COVID-19 in the young and healthy: monogenic inborn errors of immunity? Commentary article*

Published: June 18, 2020 in [Nature Reviews Immunology](#)

Summarized by subject matter expert

Summary:

- This commentary highlights the wide range of clinical severity among patients infected with SARS-CoV2 and wonders why young, previously healthy individuals develop severe COVID-19 symptoms?
- They attributed this phenomenon to different hypotheses including higher initial viral load and more virulent SARS-CoV2 strain, environmental or seasonal conditions, in addition to genetic and epigenetic transformations.
- The objective of this paper is to state that monogenetic predisposition, in particular monogenic inborn errors of immunity (IEIs), could account for severe COVID-19 cases among young, previously healthy individuals. These monogenic IEIs (that are, Mendelian and non-Mendelian) may disrupt the immune response via mechanisms specific either to the virus or to the tissue site. Importantly, at the molecular level, IEIs may lead to insufficient anti-viral immune response or can lead to an excessive immune response and hyperinflammation, with pathological consequences.
- The authors suggest that genome-wide analysis to identify IEIs is necessary to help explain severe COVID-19 disease in previously healthy children, young and middle-aged adults. This will be beneficial to fully understand the immunopathogenesis of severe COVID-19 cases. Discovery of IEIs disorders will also help to provide preventive and therapeutic interventions.



Article 2: Seroprevalence of SARS-CoV-2 in Hong Kong and in residents evacuated from Hubei province, China: a multicohort study

Summarized by subject matter expert

Published: June 03, 2020 in [The Lancet Microbe](#)

Summary:

- In an effort to improve population screening for seroprevalence in acute SARS-CoV-2 infections, this multi-cohort study was aimed at (1) validating COVID-19 serological assays (Enzyme immunoassays and microneutralization assay) by determining the cutoff, sensitivity and specificity and (2) generate SARS-CoV-2 seroepidemiological data for the general population of Hong Kong before and after COVID-19 pandemic and establish the seroprevalence among Hong Kong residents who were evacuated from Hubei province, China.

Findings:

- The sensitivity for the microneutralization assay was 91.1% (41 of 45 [95%CI 78.8-97.5]), 57.8% (26 of 45 [42.2-72.3]) for anti-nucleoprotein IgG, 66.7% (30 of 45 [51.1-80.0]) for anti-spike protein receptor binding domain (RBD) IgG, and 73.3% (33 of 45 [58.1-85.4]) for the enzyme immunoassay (positive for either anti-nucleoprotein IgG or anti-RBD IgG). The specificity of these assays was established using retrieved archived serum samples and found to be 100% for anti-nucleoprotein IgG, anti-RBD IgG, and the microneutralization assay.
- Next, The seropositivity was assessed among Hong Kong general population using archived serum samples collected between April 2018 and Feb 2020. Around 2.7% were enzyme immunoassay positive for either anti-nucleoprotein IgG or anti-RBD IgG, but of those who were positive, all tested negative with the microneutralization assay. No significant increase in the seropositivity rate was observed between April 2018 and Feb 2020. Among Hubei returnees, **who were all asymptomatic, 4% (17/ 452) were seropositive with either** the enzyme immunoassay or the microneutralization assay with majority being confirmed with the microneutralization assay.
- **This study concluded that the general populations in Hong Kong and Hubei remain susceptible to SARS-CoV-2 infection due to the low seropositivity rate.** Moreover, the seroprevalence data for Hubei returnees **suggests that RT-PCR confirmed symptomatic infections underestimated the actual prevalence of COVID-19 and represented only a small proportion of total cases.** (note all the 452 tested negative in PCR)

Article 3 : Ensuring Uptake of Vaccines against SARS-CoV-2es

Published: June 26, 2020 in the [NEJM](#)

Summary:

- In the United States (US), developing a policy strategy to ensure uptake of vaccines will take time. A framework has been offered that states can apply to help ensure uptake of the vaccine when it becomes available including consideration of when a mandate might become appropriate. There are six significant criteria should be met before a state imposes a vaccine mandate.
- State mandates will not be structured as compulsory vaccination; instead, noncompliance should incur a penalty such as employment suspension or stay at home orders for persons in high priority groups who refuse to take vaccine.
- In order to build public trust, it requires that state officials implement vaccination policy through a transparent and inclusive process, working closely with stakeholder groups such as local health officers, health professional and hospital associations, representatives of high-risk population groups, and groups concerned about vaccine safety.

Six Trigger Criteria for State Covid-19 Vaccination Mandates.

- Covid-19 is not adequately contained in the state. The Advisory Committee on Immunization Practices has recommended vaccination for the groups for which a mandate is being considered.
- The supply of vaccine is sufficient to cover the population groups for which a mandate is being considered.
- Available evidence about the safety and efficacy of the vaccine has been transparently communicated.
- The state has created infrastructure to provide access to vaccination without financial or logistic barriers, compensation to workers who have adverse effects from a required vaccine, and real-time surveillance of vaccine side effects.
- In a time-limited evaluation, voluntary uptake of the vaccine among high-priority groups has fallen short of the level required to prevent epidemic spread.



THANK YOU

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