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Scientific Research Monitoring on COVID-19

16 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>

Summary on COVID19



SARS-COV2 virus

- The virus have been sequenced and found to be similar to MERS-CoV and SARS-CoV. Research revealed that the virus originated in a bat reservoir.
- New designation for the disease and the virus: COVID-19 and SARS-COV2.
- Two strain have been identified for SARS-COV2 (L type (more aggressive) and S type .and 3 cluster groups.

Transmission

- Transmission from human to human has been confirmed. Incubation period ranges from 5 days and can reach up to 14 days.
- Suggested human-to-human transmission occurs through droplets, contact and fomites, similar to Severe Acute Respiratory Syndrome (SARS).

Clinical features and outcome

- Non-specific and the disease presentation can range from no symptoms (asymptomatic) to severe pneumonia and death.
- Highest risk for severe disease and death include people aged over 60 years and those with underlying conditions
- Pregnant women infected with SARS-COV2 may experience symptoms similar to those of non-pregnant adults. No evidence suggests transmission from mother to newborn if infected late in pregnancy.

Therapies and vaccination

- Efforts currently in developing therapies for this virus focus on previously known medications and vaccination for MERS-CoV and SARS-CoV. In addition to other type of medication.
- Also more therapies are currently under investigation including immunomodulatory, antimalarial and others.
- Vaccination are under clinical trial stage in many countries around the world.

Summary on COVID19 (Cont.)

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COVID19 in figure

- 80% of laboratory confirmed patients have had mild to moderate disease
- 13.8% have severe disease.
- 6.1% are critical
- Children account for 2.4% of all reported cases.(less than 19 years) data from china



Todays' Highlights

All articles presented in this report represents the authors' views and not necessarily represents Abu Dhabi Public Health Center views or directions.

Scientific Research

- **Public Health Response:** article that discusses the importance of proper documentation of death certificates during COVID19 pandemic and encourage public health to publish and disseminate updated guidelines about which deaths need to be reported and what is acceptable death certificate terminology.
- **Treatment:** repurpose immunomodulatory called Thymosin $\alpha 1$ for the treatment of COVID19 might create a new promise in managing sever symptoms.
- **UAE research:** a study on 20 cases with Stroke and COVID19 found that the majority of patients presented with stroke symptoms as first evidence of their COVID-19 infection, and the stroke mechanism was predominantly affecting large arteries and young patients (less than 55 years).
- **Treatment:** the FDA revoked the emergency authorization of HCQ and CQ for the treatment of covid19



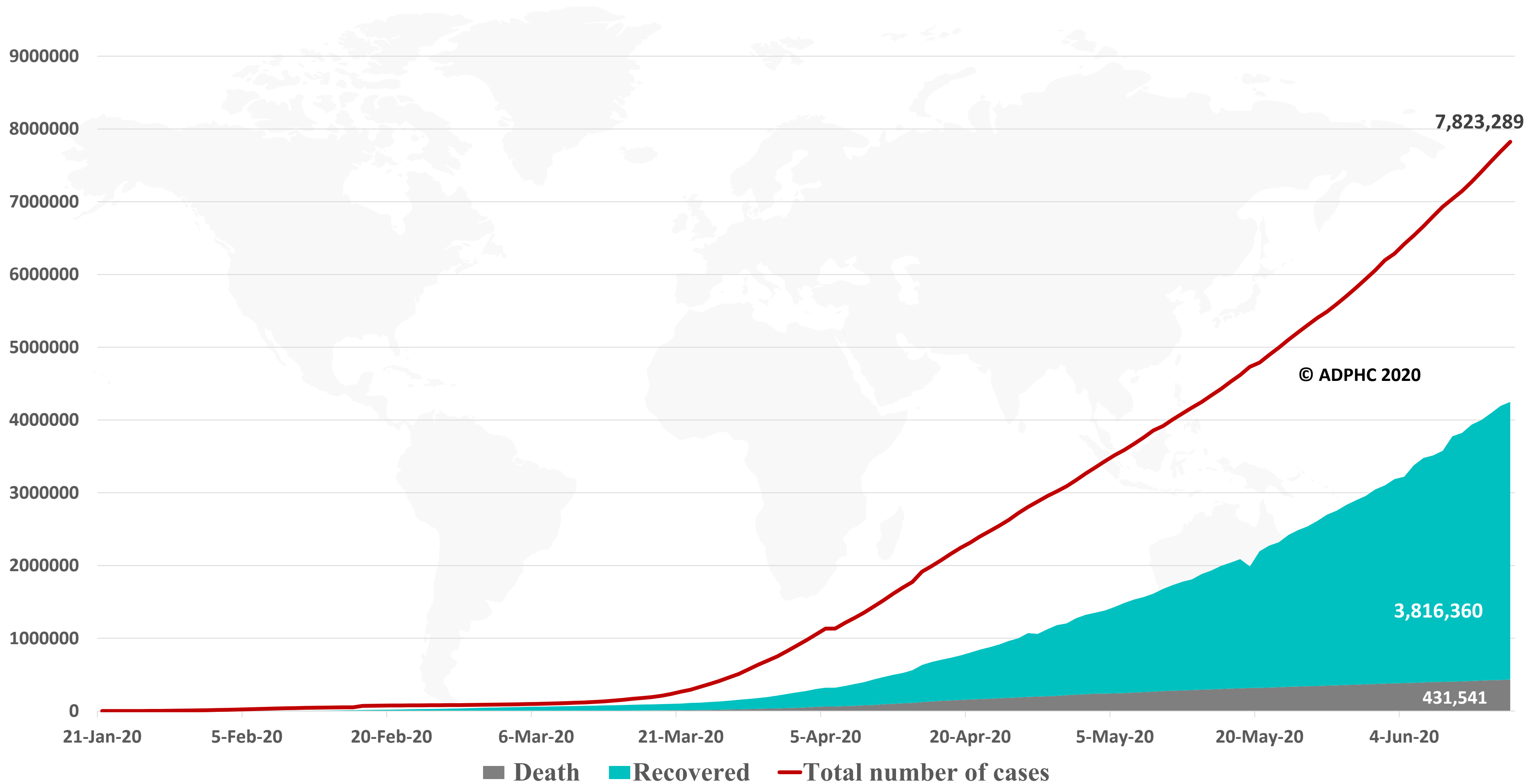
WHO Daily Report 15 June 2020

- As the pandemic accelerates in low- and middle-income countries, WHO is especially concerned about its impact on people who already struggle to access health services – often women, children and adolescents. WHO has developed guidance on maintaining essential services.
- WHO has also carefully investigated the risks of women transmitting COVID-19 to their babies during breastfeeding. **Based on the available evidence, [WHO's advice is that the benefits of breastfeeding outweigh any potential risks of transmission of COVID-19.](#)**
- WHO has recently released information on sexual transmission and reproductive health during the COVID-19 pandemic. [At present, there is no evidence of sexual transmission of the virus responsible for COVID-19.](#) The virus can be passed however, through direct contact with saliva.
- There are many things people can do to take care of their own health, like staying active, eating a nutritious diet and limiting their alcohol intake.
- The WHO presented more information on the Vaccine the Solidarity Trials, which are being used to accelerate research on a COVID-19 Vaccine.
 - WHO has also launched a call for expressions of interest from vaccine trial sites around the world to identify those that would participate in a vaccine Solidarity Trial using this core protocol.
 - more than 120 different candidate vaccines are under development and will be under trial.
 - A multi-disciplinary group of experts from across the world to discuss, from different perspectives, to develop the concept of Human Challenge Studies (challenge studies is to infect the vaccinated patient with the virus) this require a lot of consideration including ethical consideration and the availability of BSL-3 lab.
 - The WHO have created advisory board for the challenge study and published previously a [guide outlining the key criteria for the ethical acceptability of Covid-19 human challenge studies.](#)

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to Jun 15, 2020)

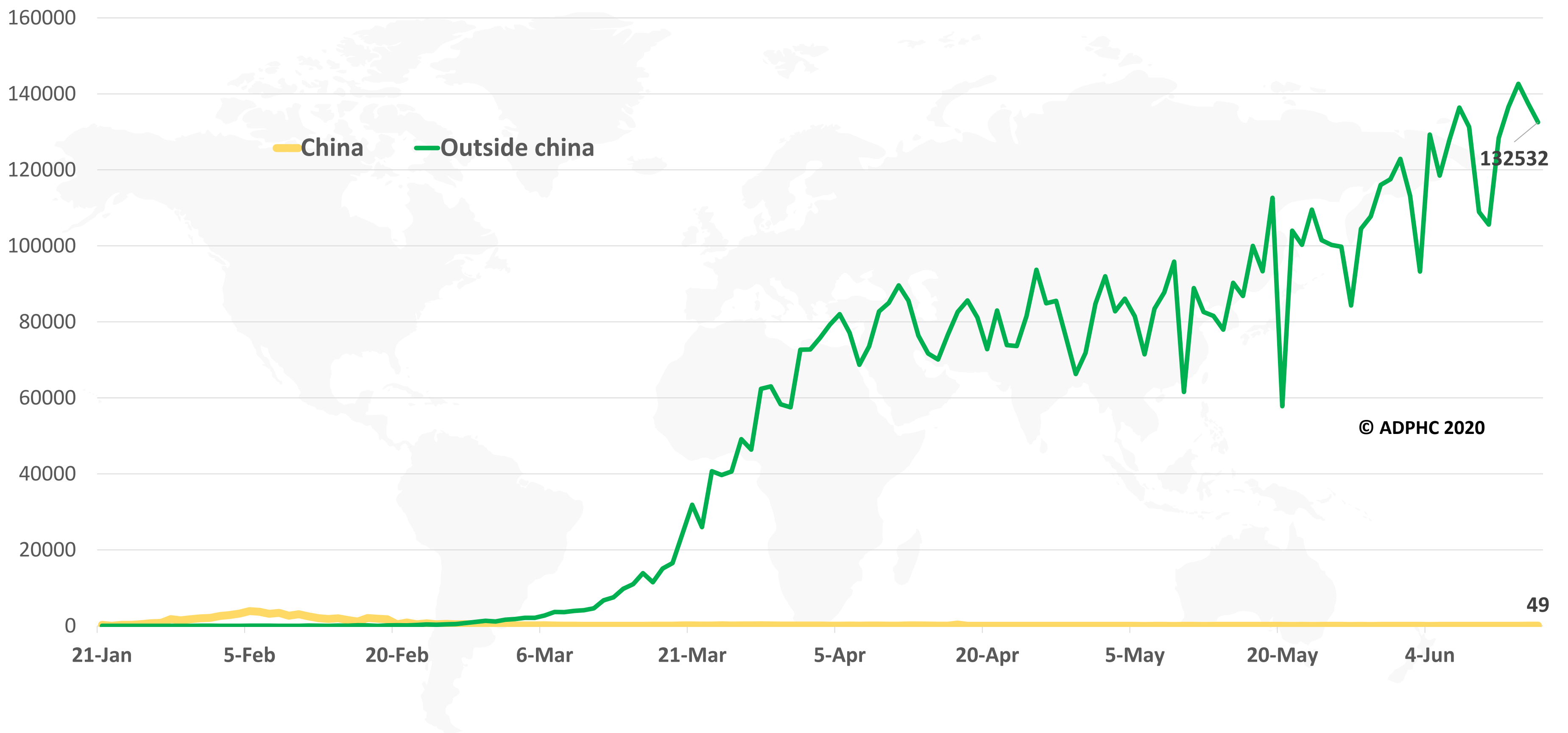


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to Jun 15, 2020).



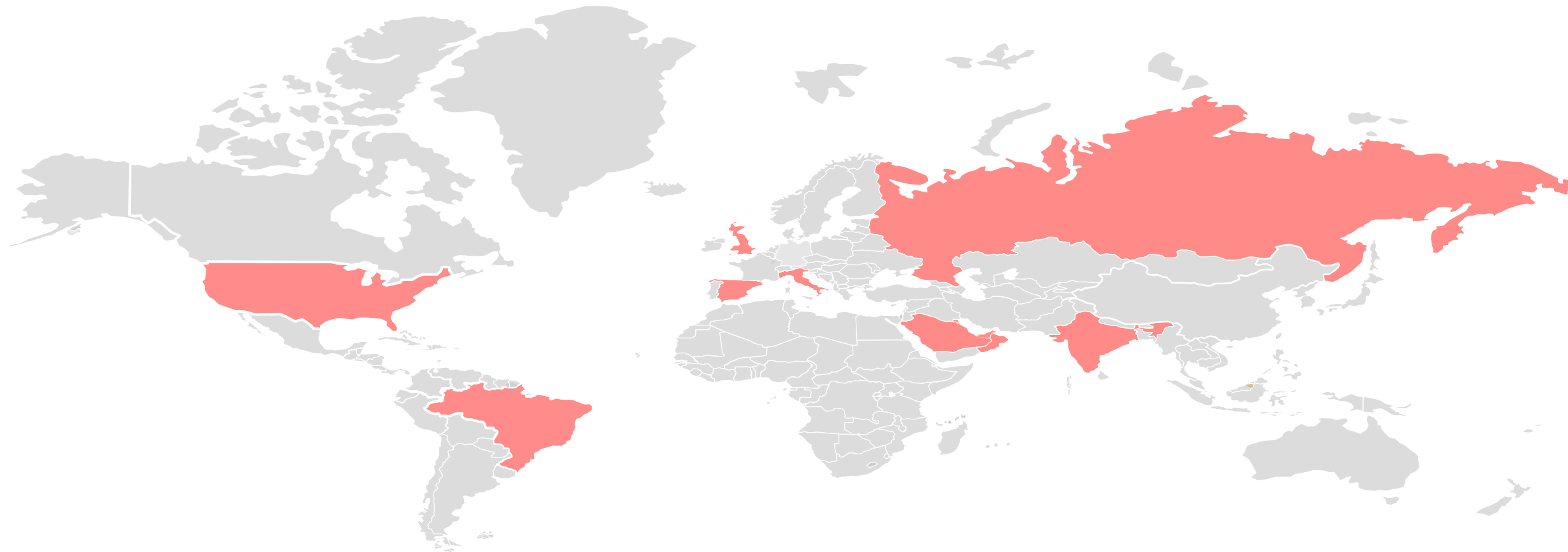
Line graph published by Abu Dhabi Public Health Center 2020.

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

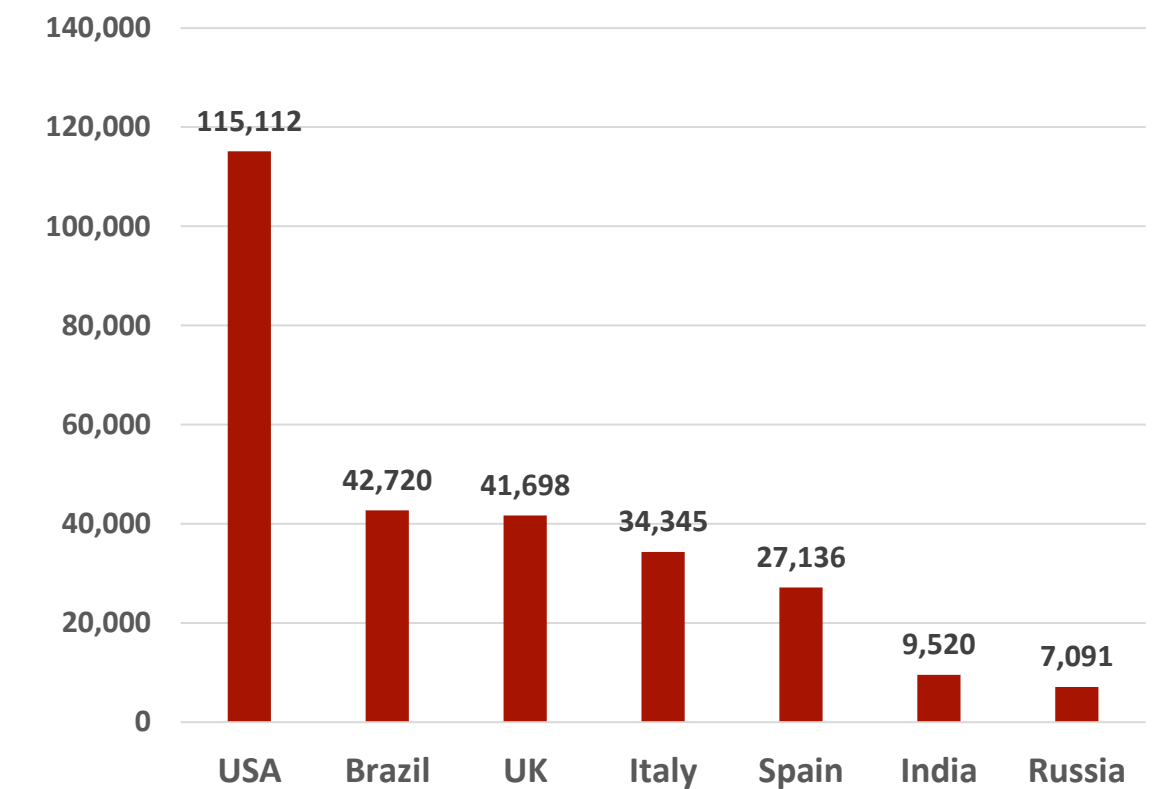
Epidemiology



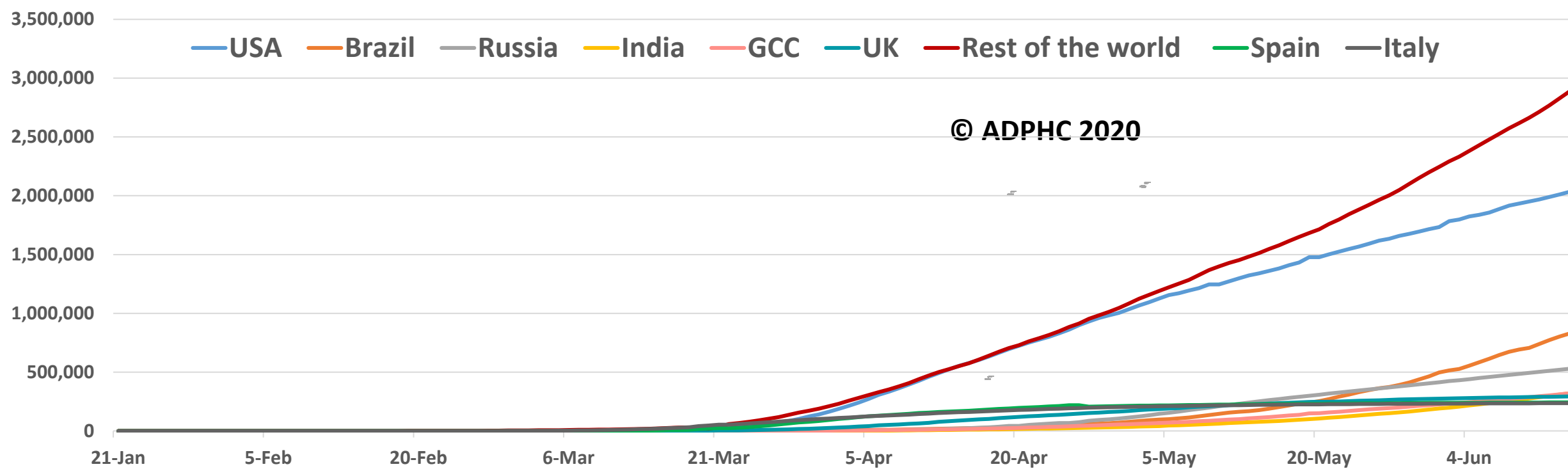
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 15, 2020).



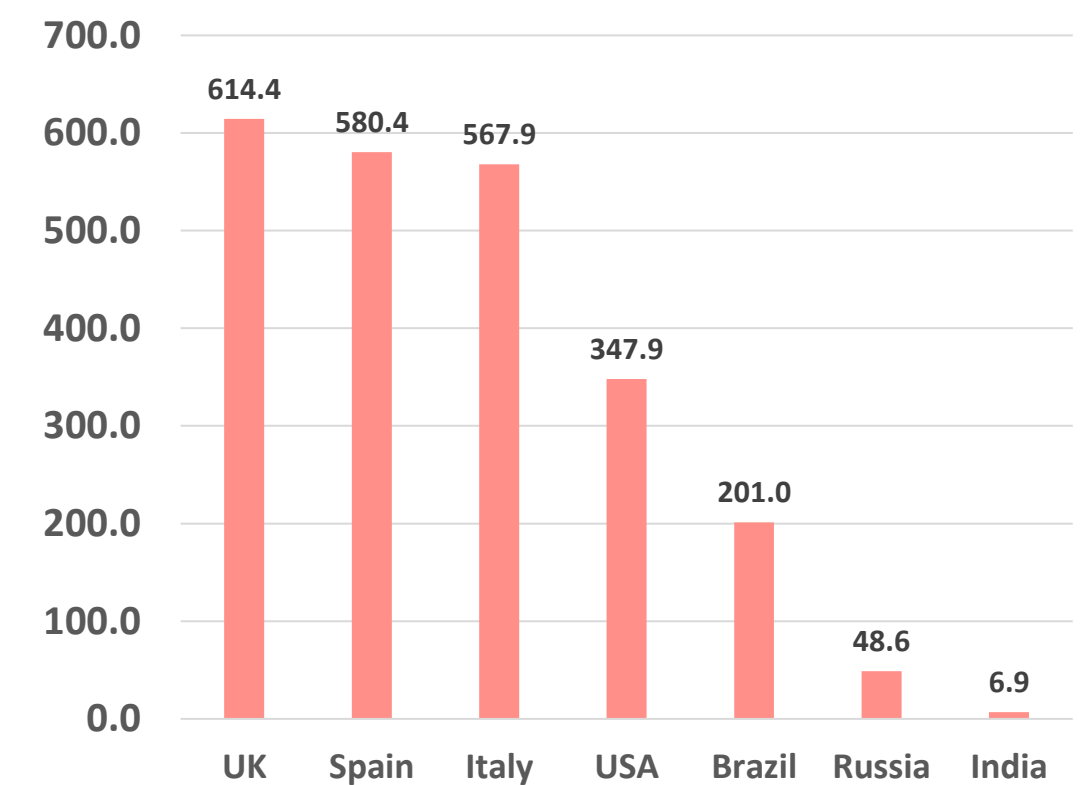
TOTAL DEATHS



TOTAL INFECTED CASES



DEATHS PER MILLION



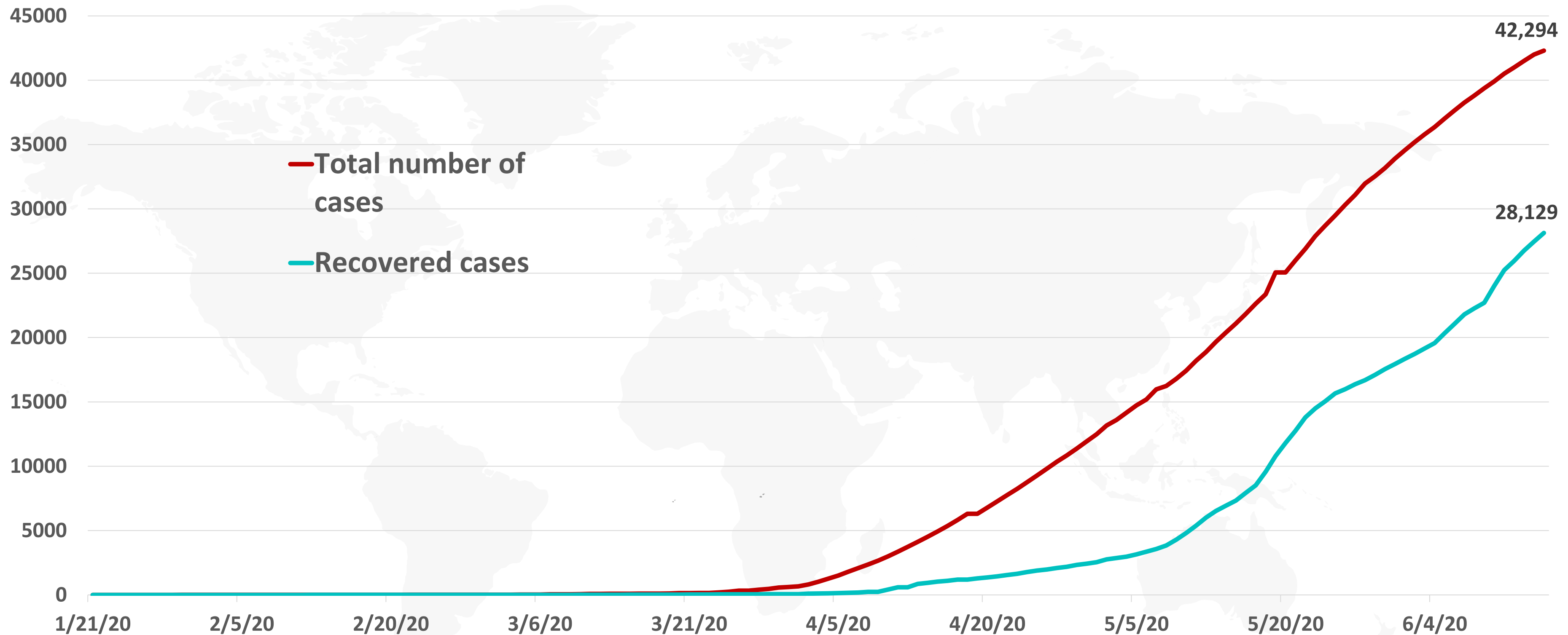
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



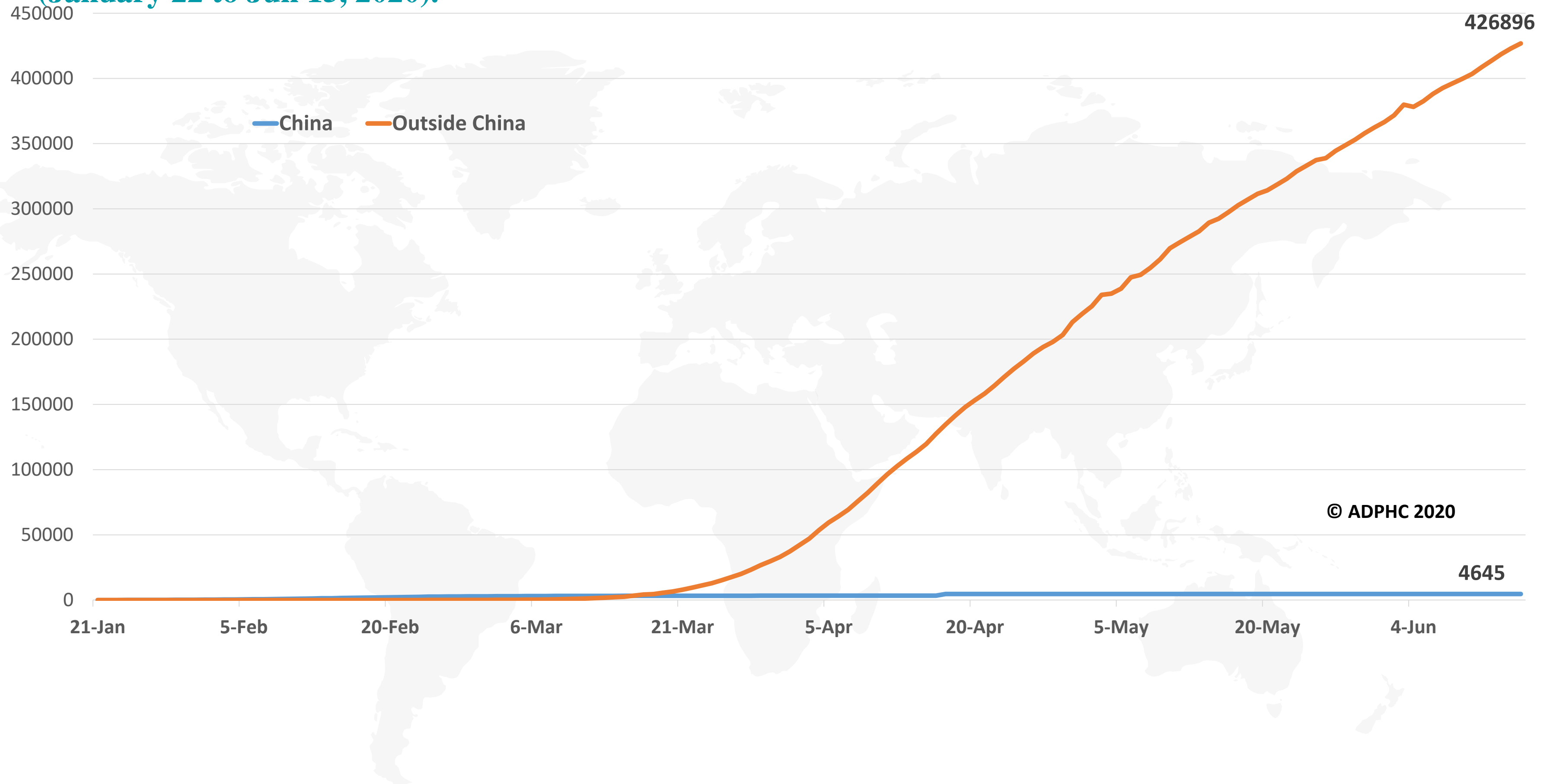
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

Epidemiology



Figure 5: Total number of death due to COVID-19 reported by China and the rest of the world (January 22 to Jun 15, 2020).



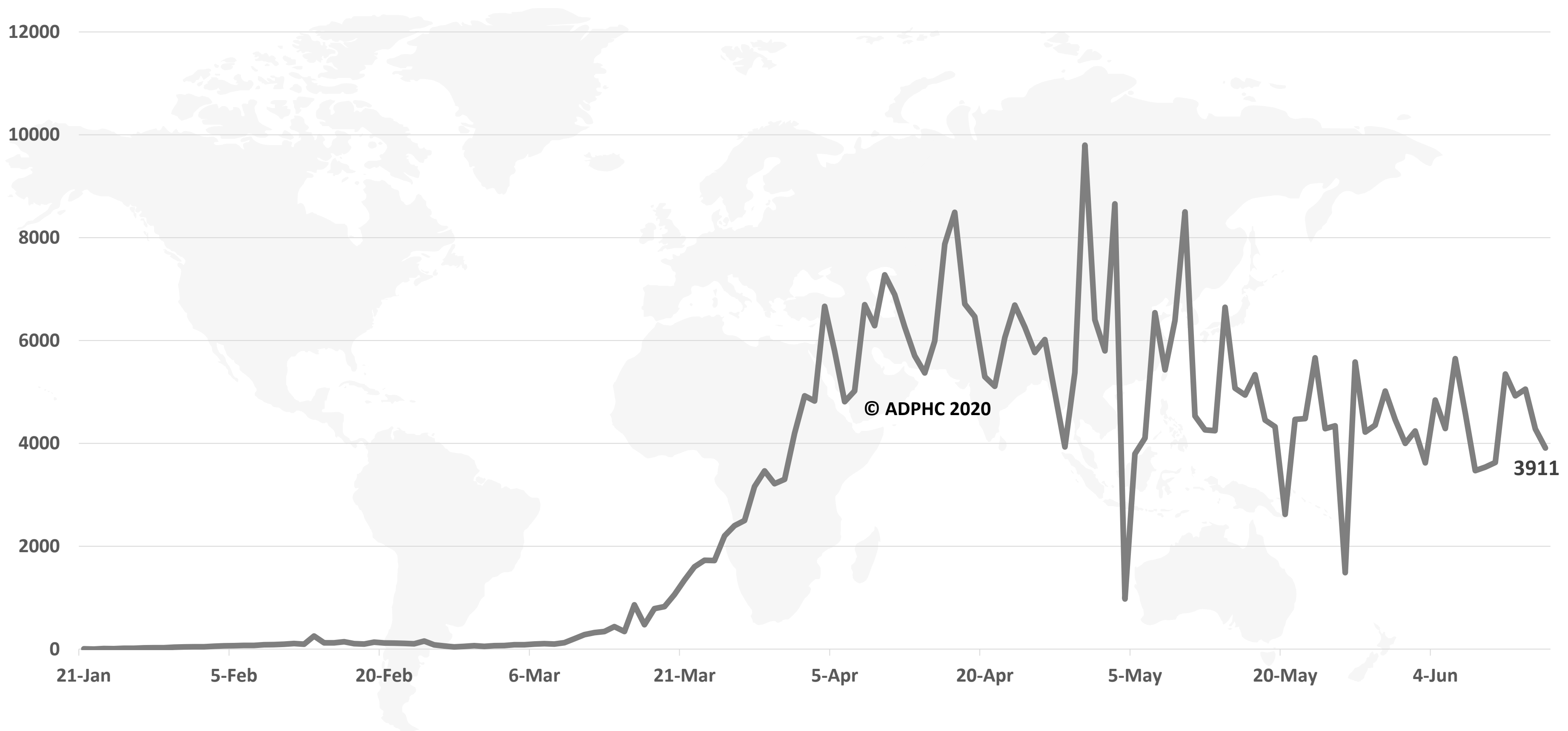
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Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 15, 2020).



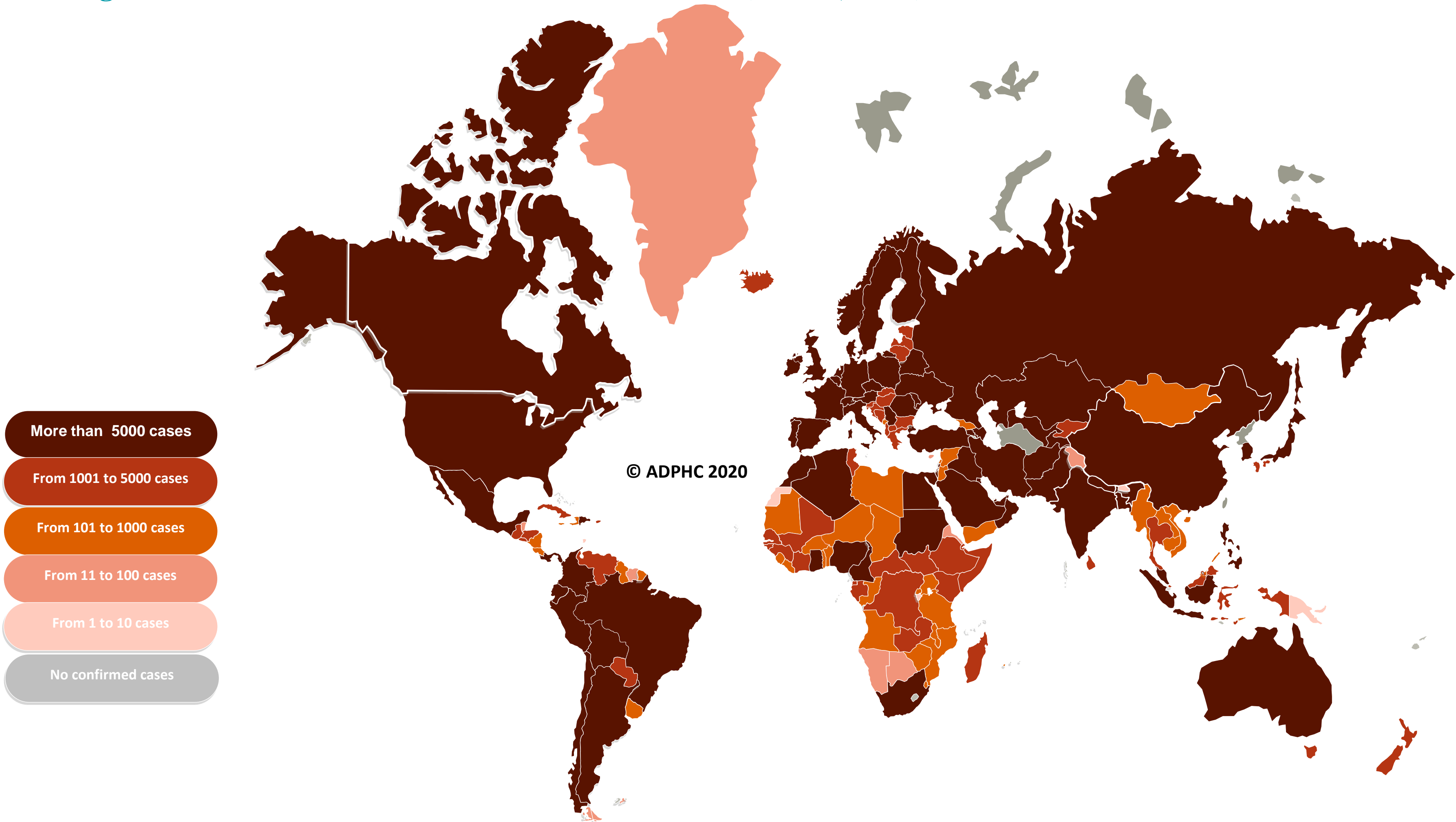
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



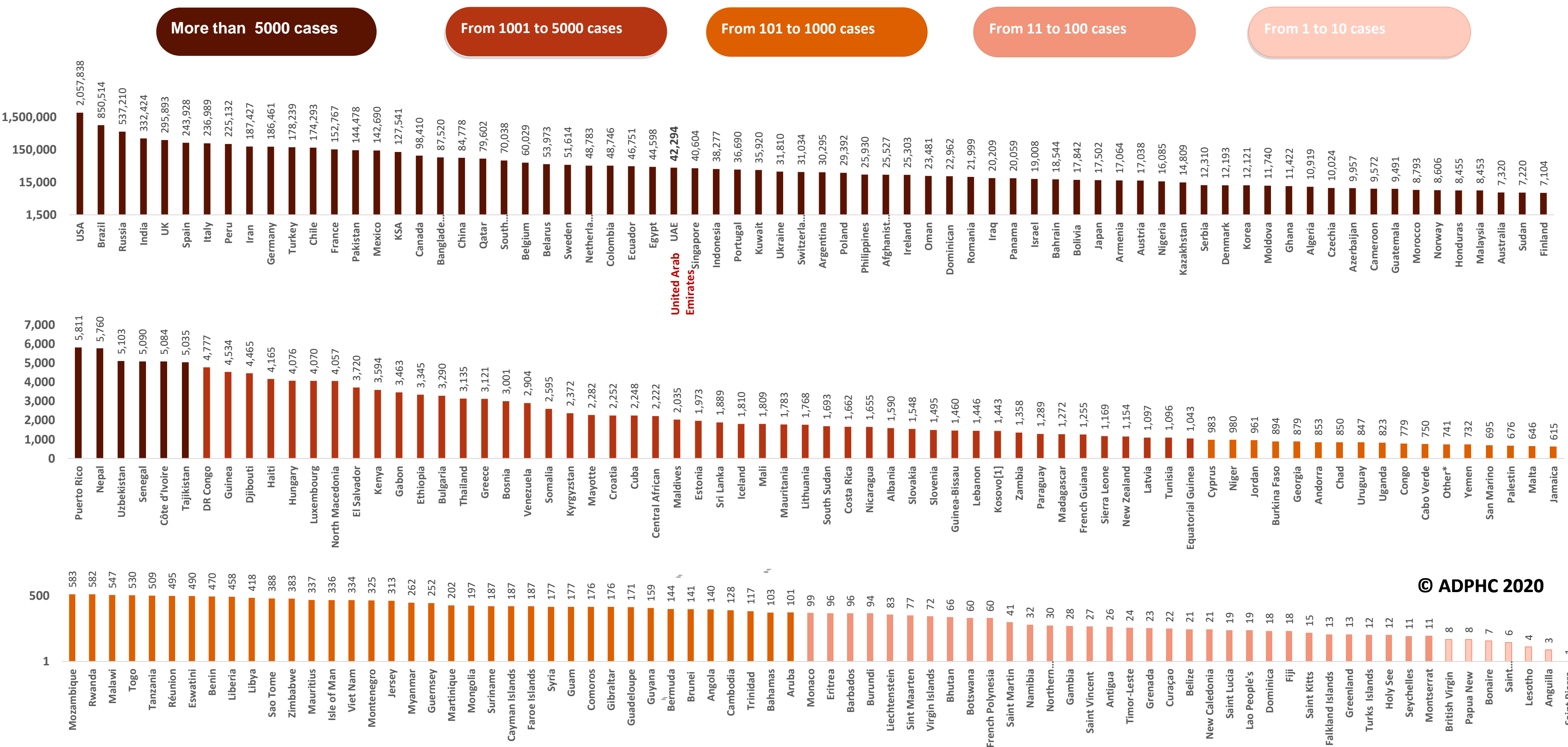
Figure 7a : Global distribution of COVID-19 cases (Jun 15, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 15, 2020)



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

Map chart published by Abu Dhabi Public Health Center 2020.

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

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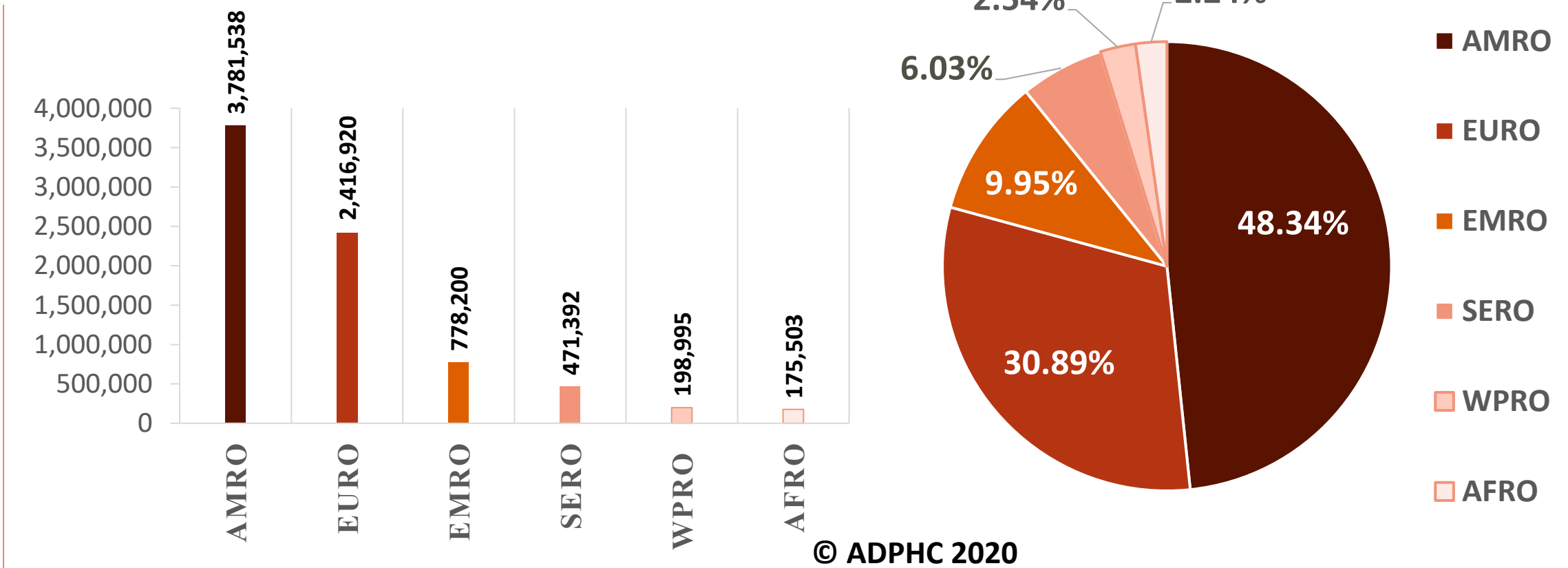
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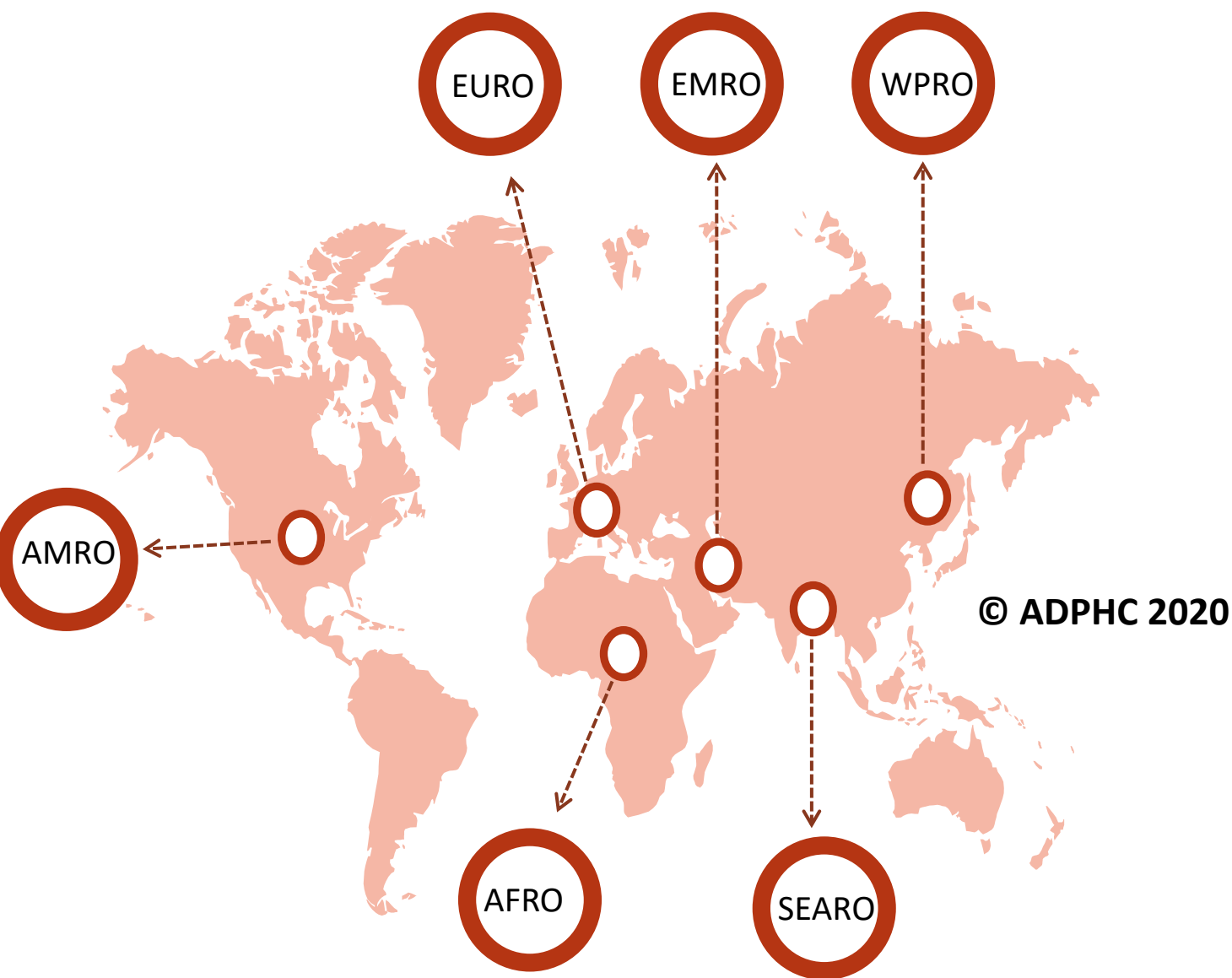
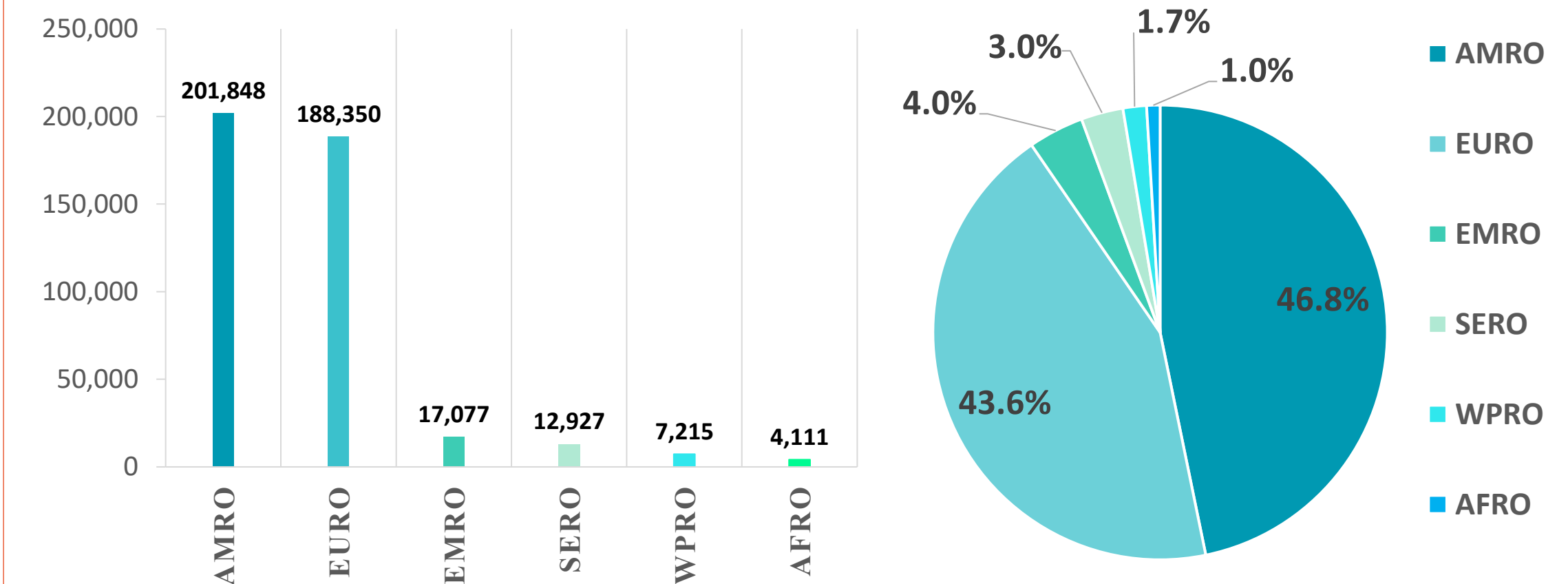


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 15, 2020)

INFECTED



DEATH



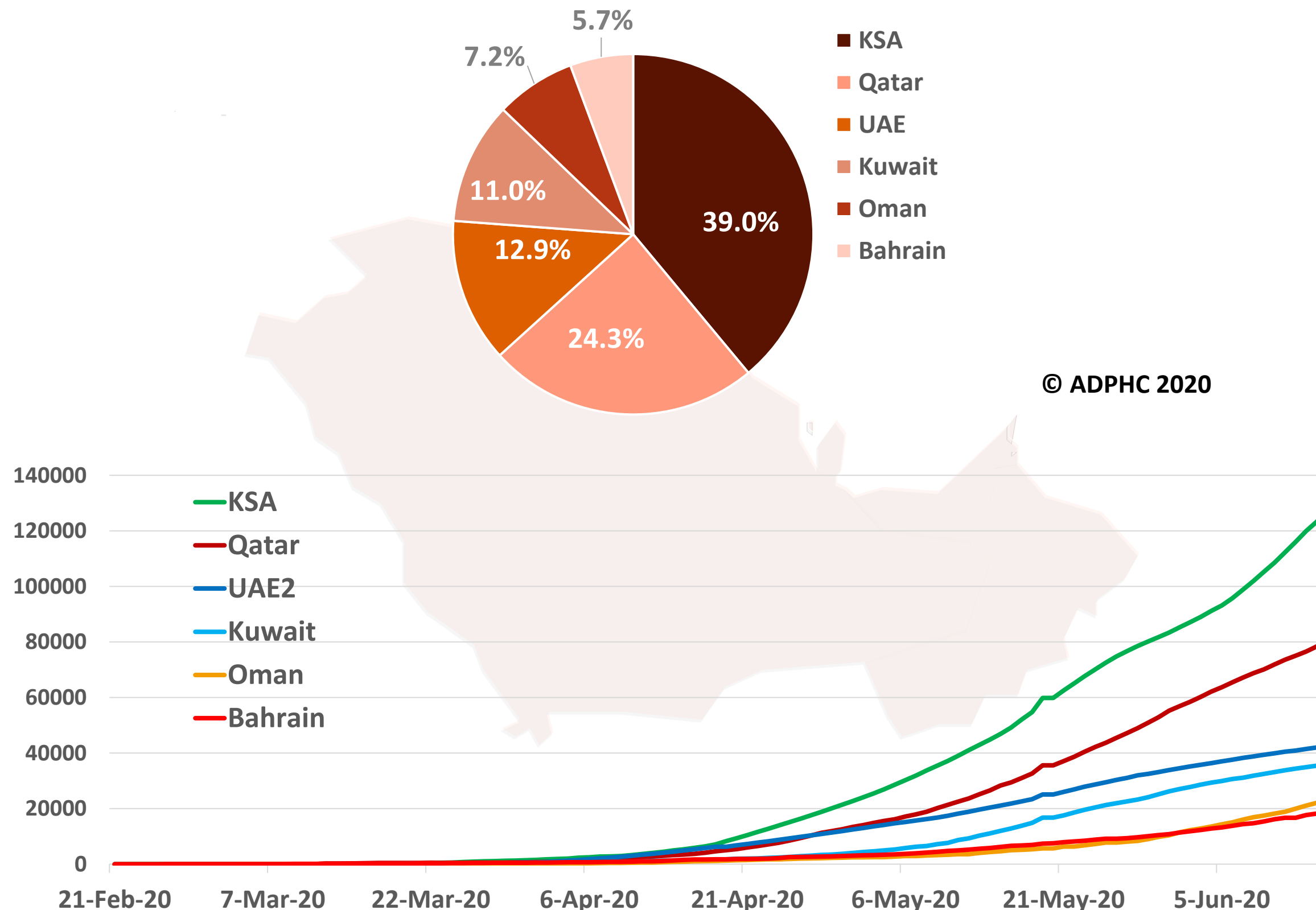
Map chart published by Abu Dhabi Public Health Center 2020.

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



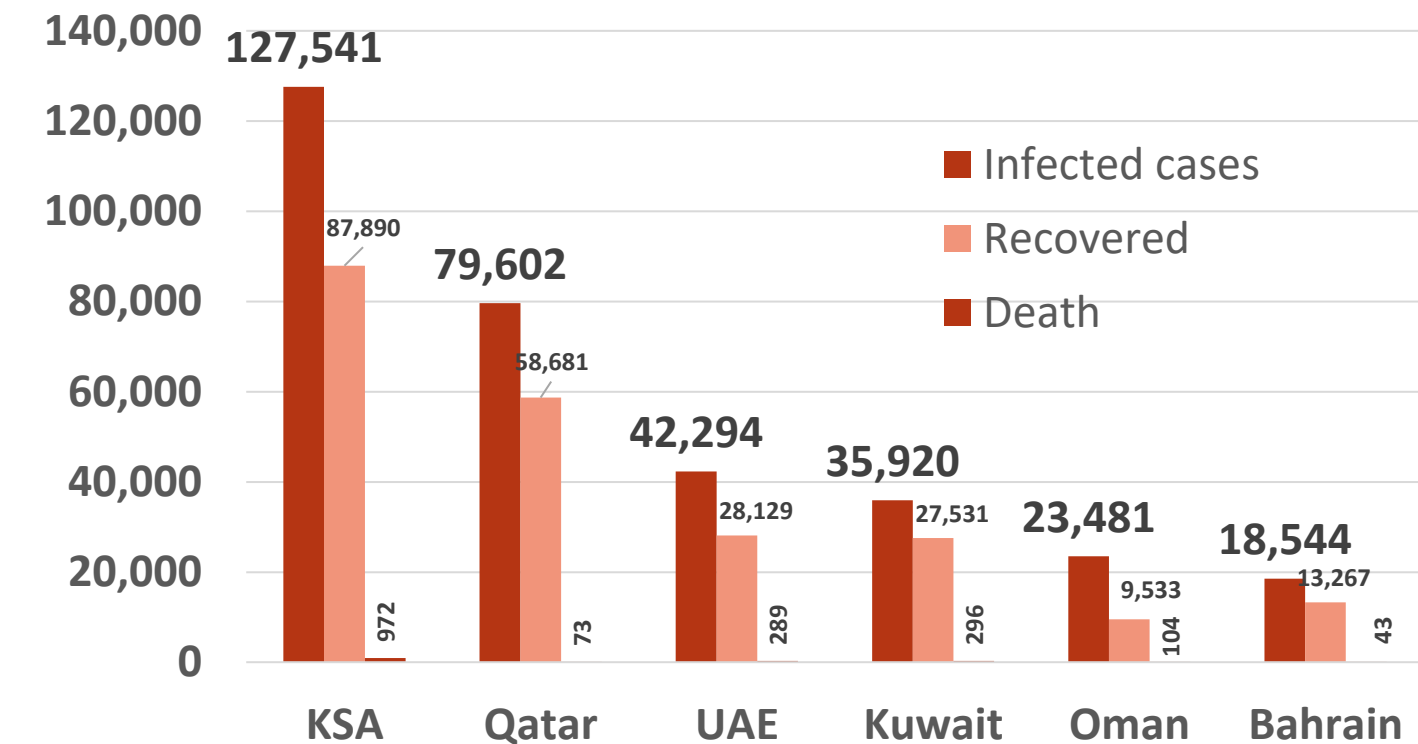
Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 15, 2020)

TOTAL NUMBER OF INFECTED CASES

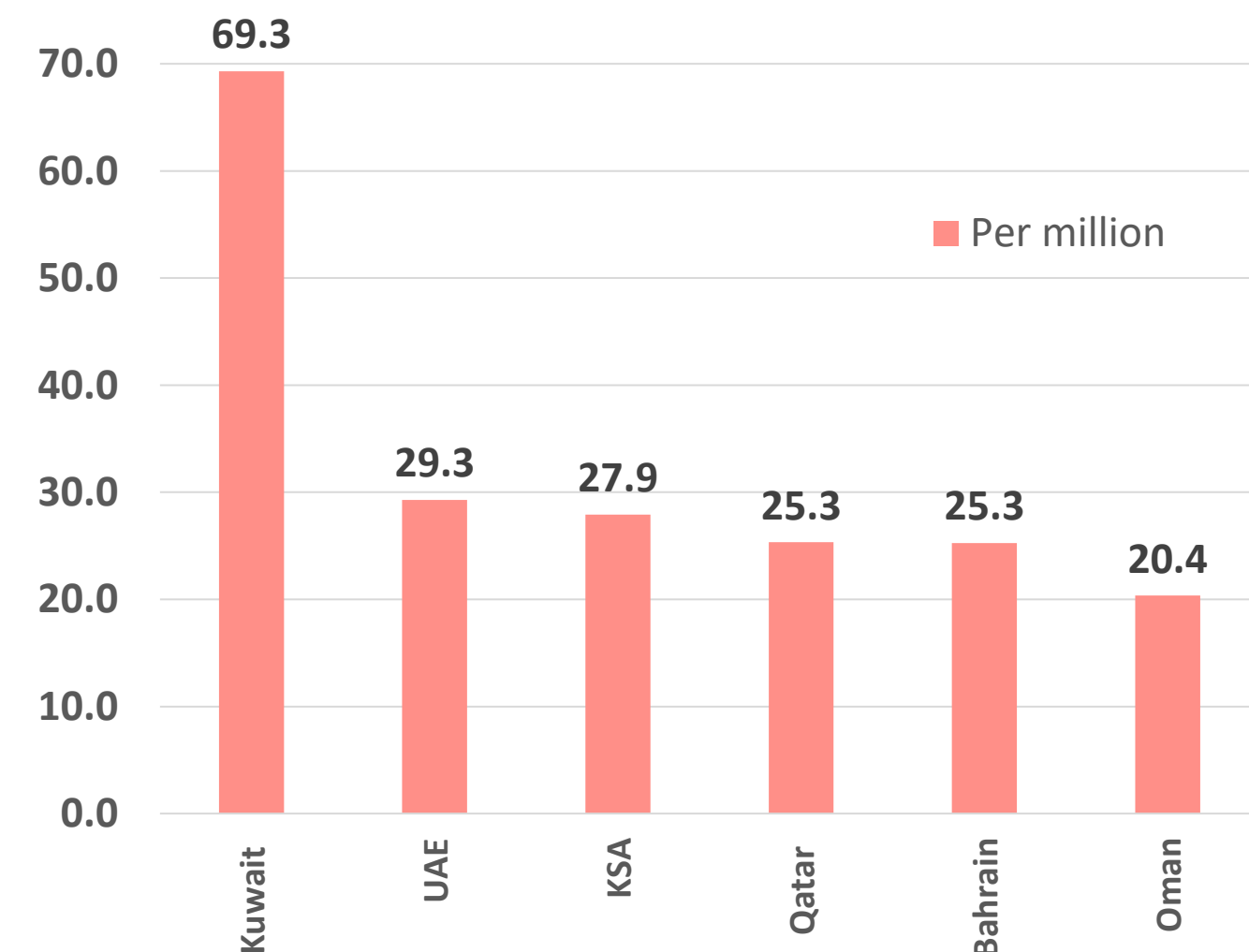


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Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#), [John Hopkins University](#)

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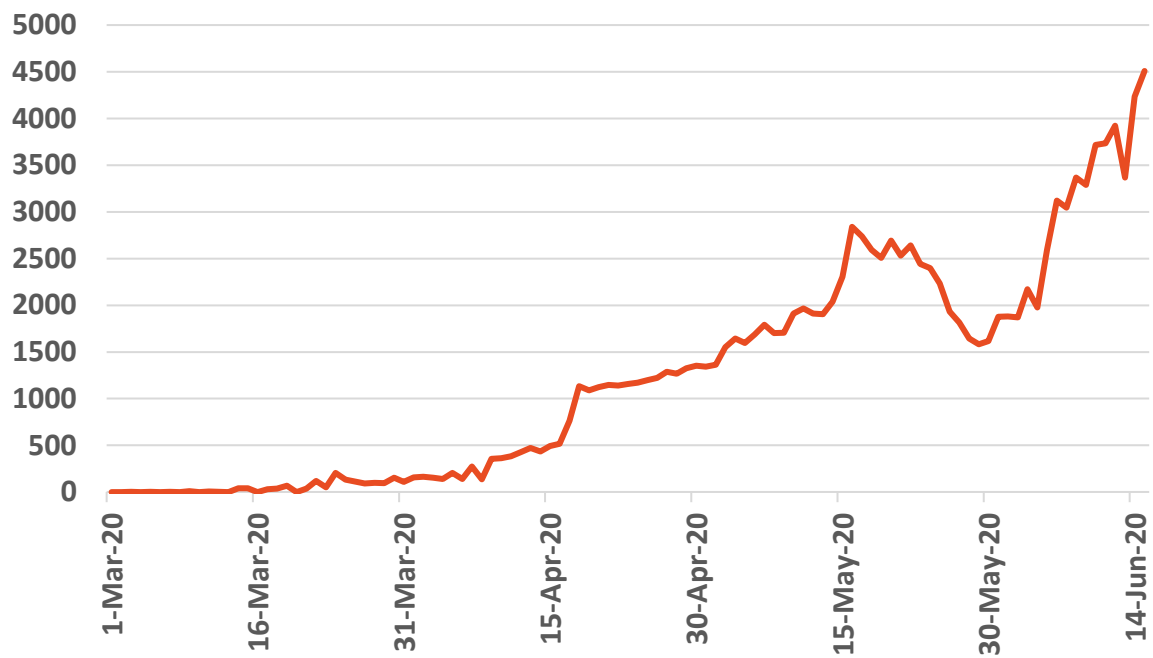
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Epidemiology



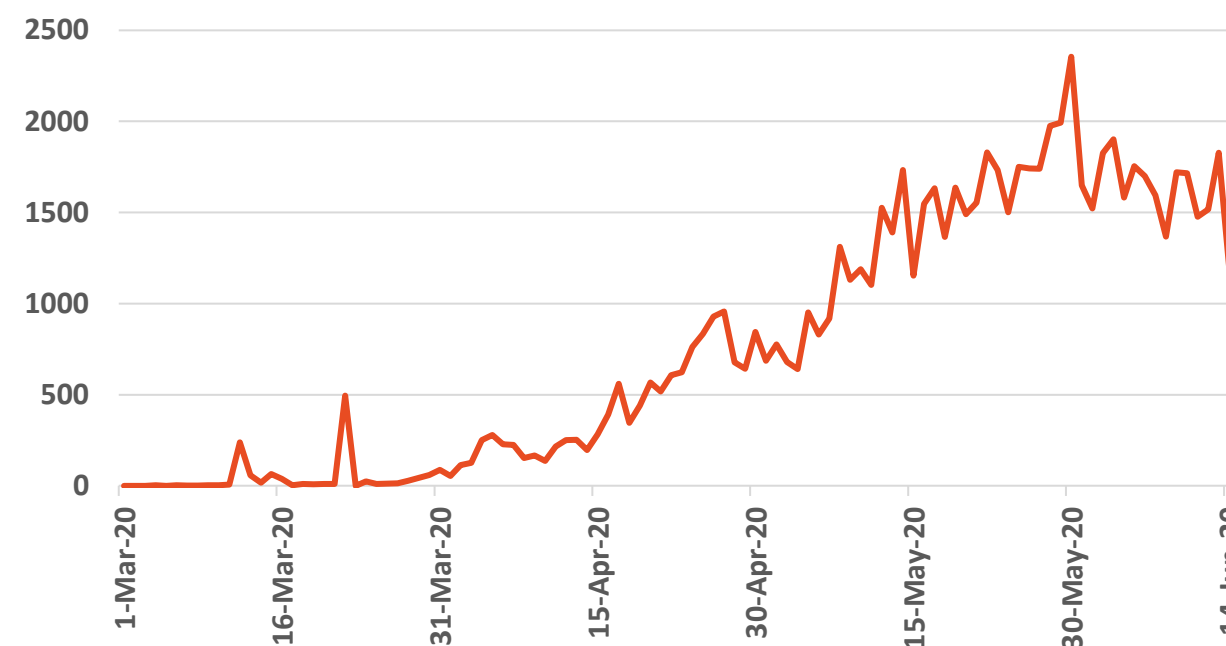
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 15, 2020)

KSA



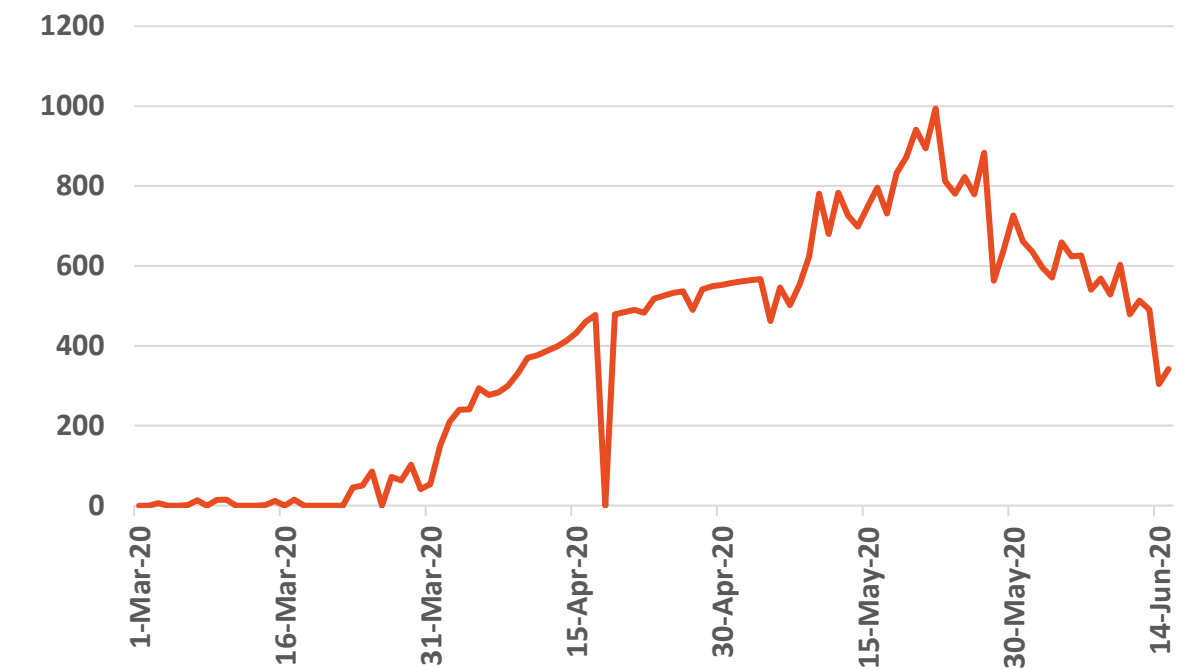
Source : KSA ministry of health

Qatar



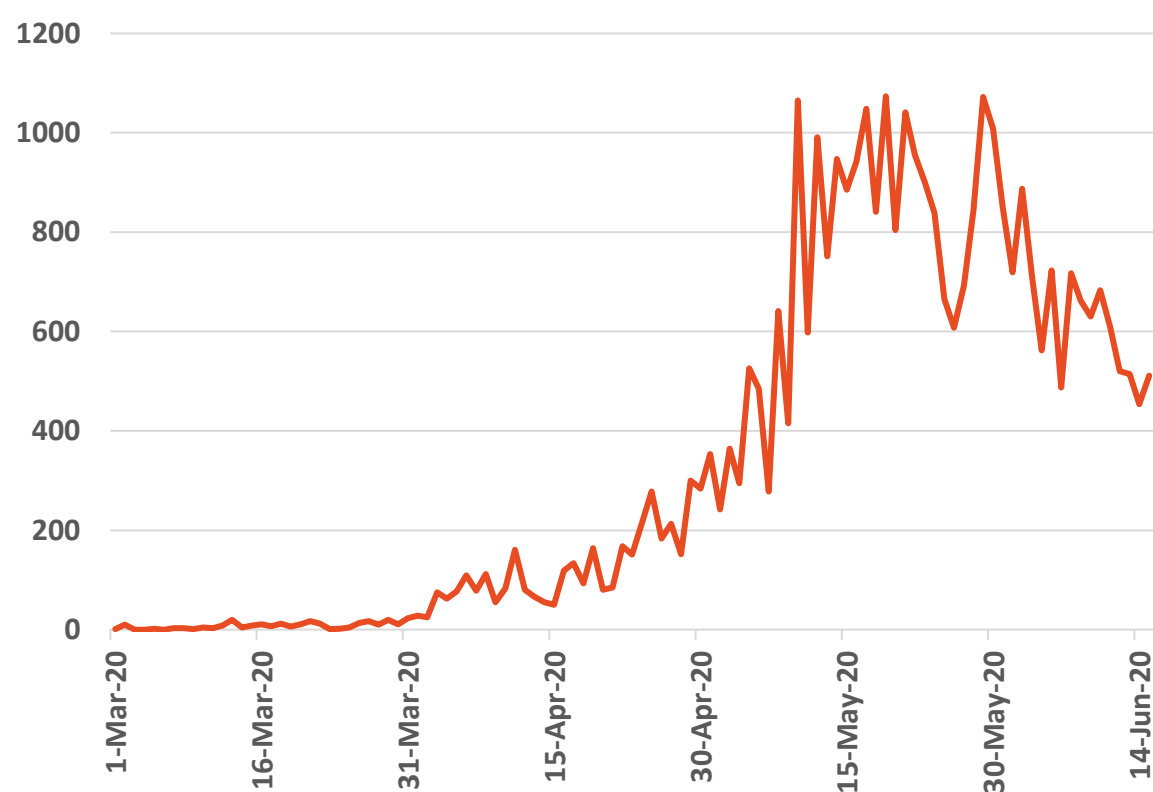
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

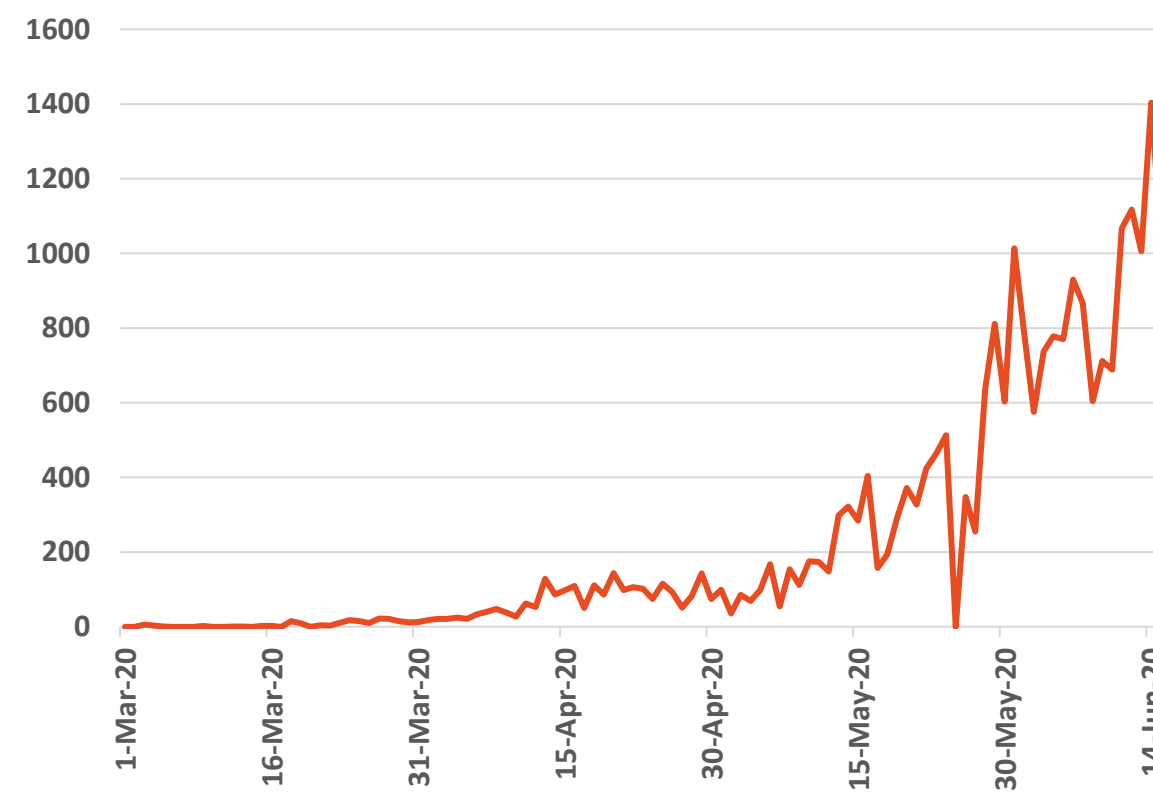
Kuwait



Source : Kuwait ministry of health

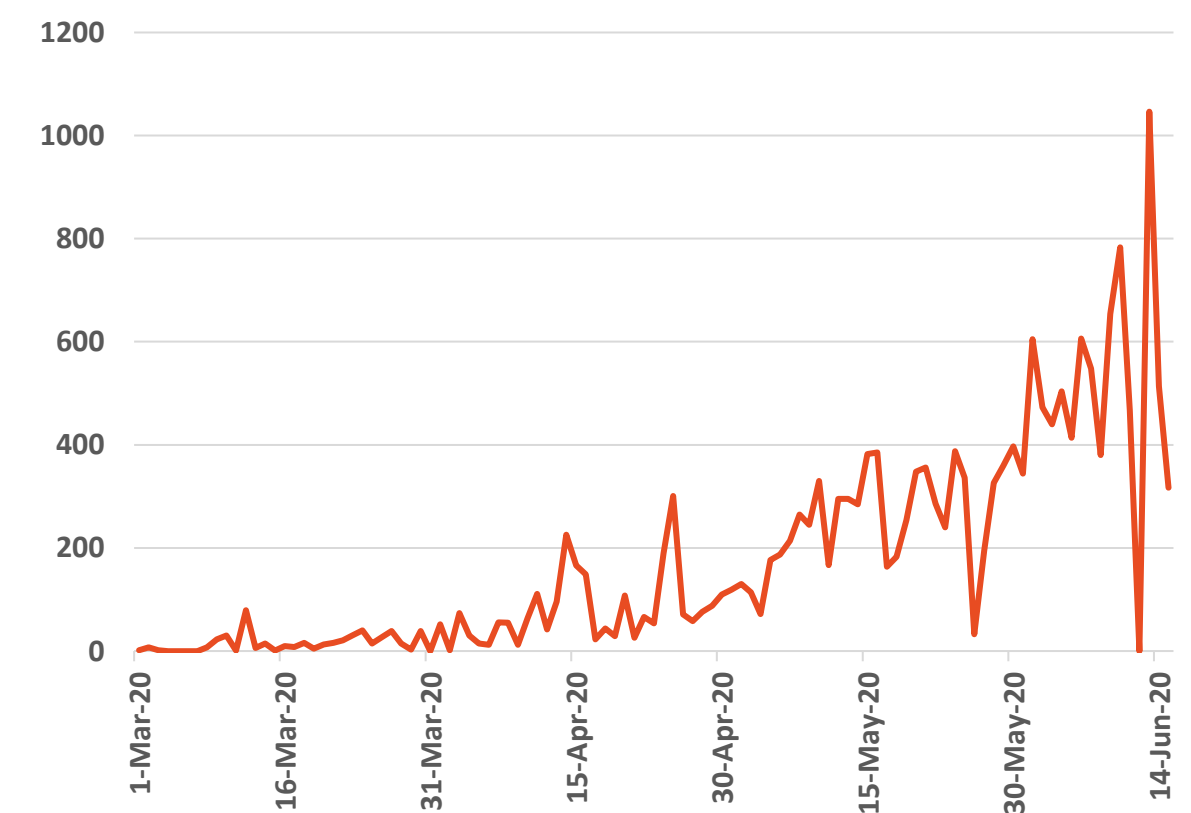
Oman

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Source :Oman ministry of health

Bahrain



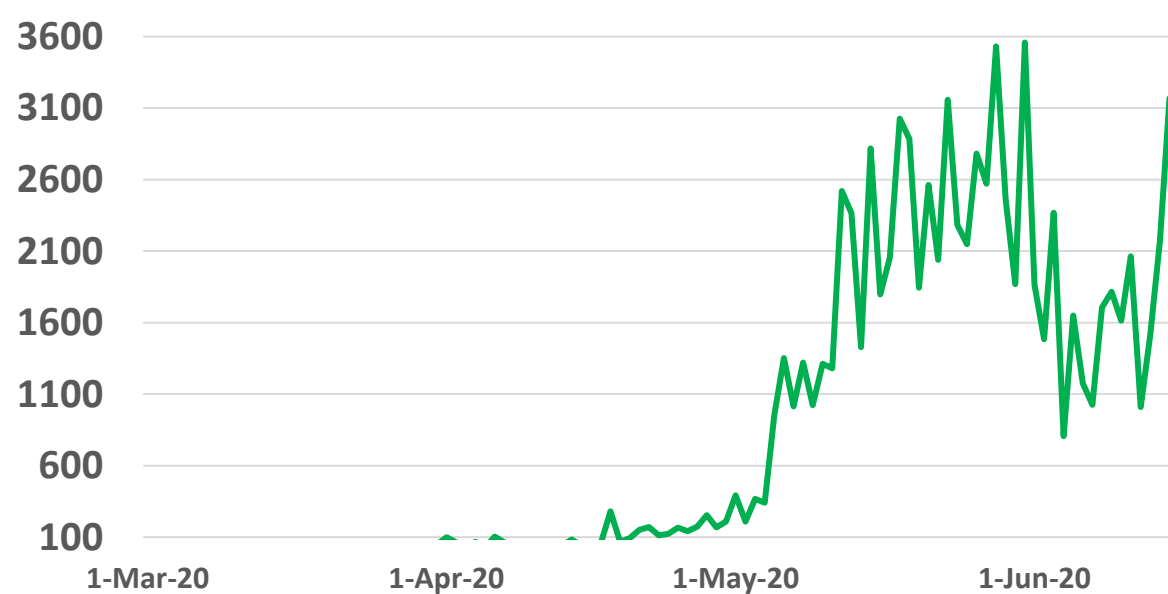
Source :WHO

Epidemiology



Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 15, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

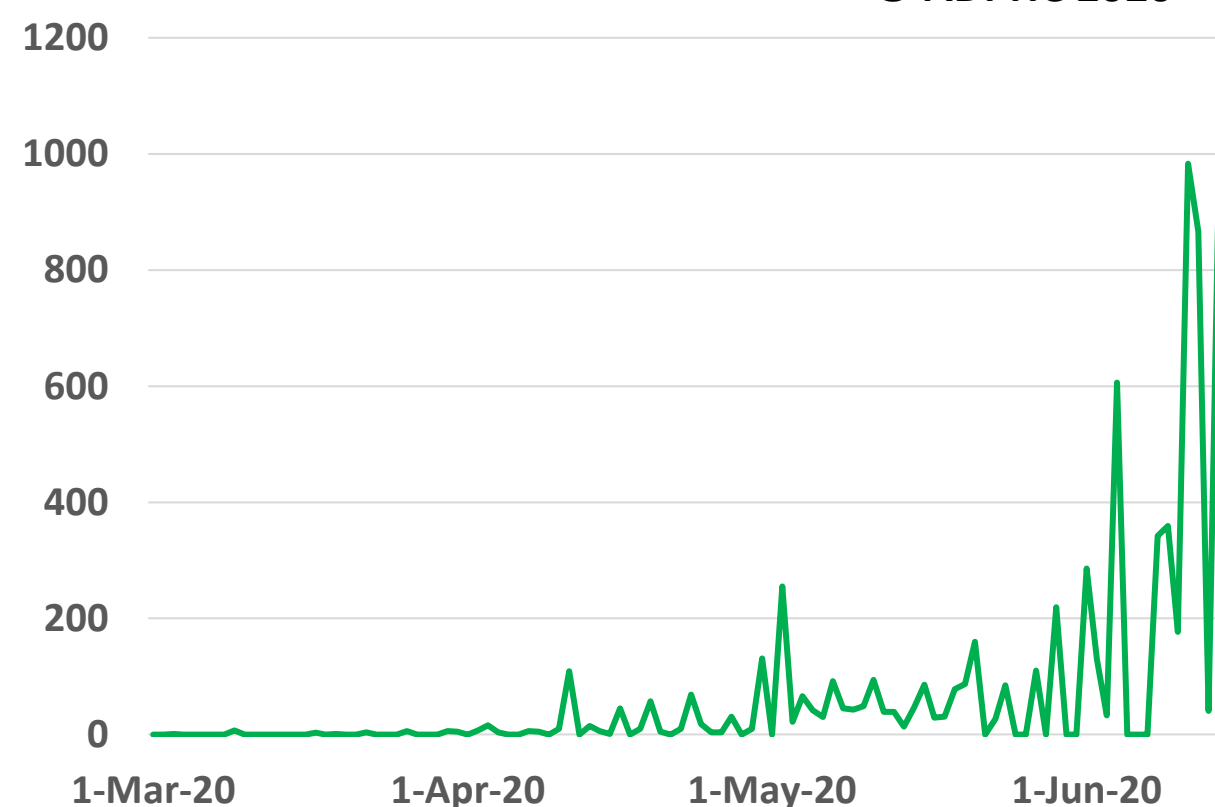
Kuwait



Source : Kuwait ministry of health

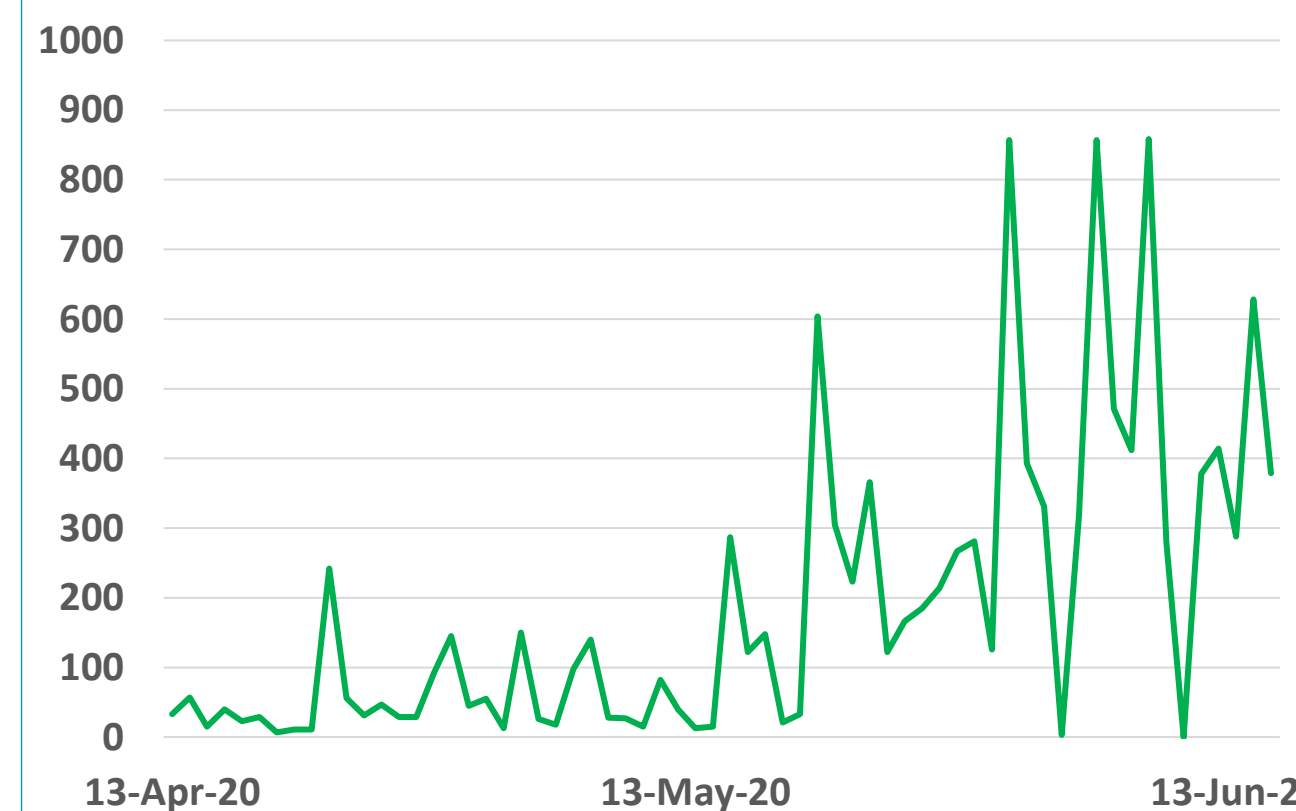
Oman

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Source : Oman ministry of health

Bahrain



Source : GCCStat

Epidemiology



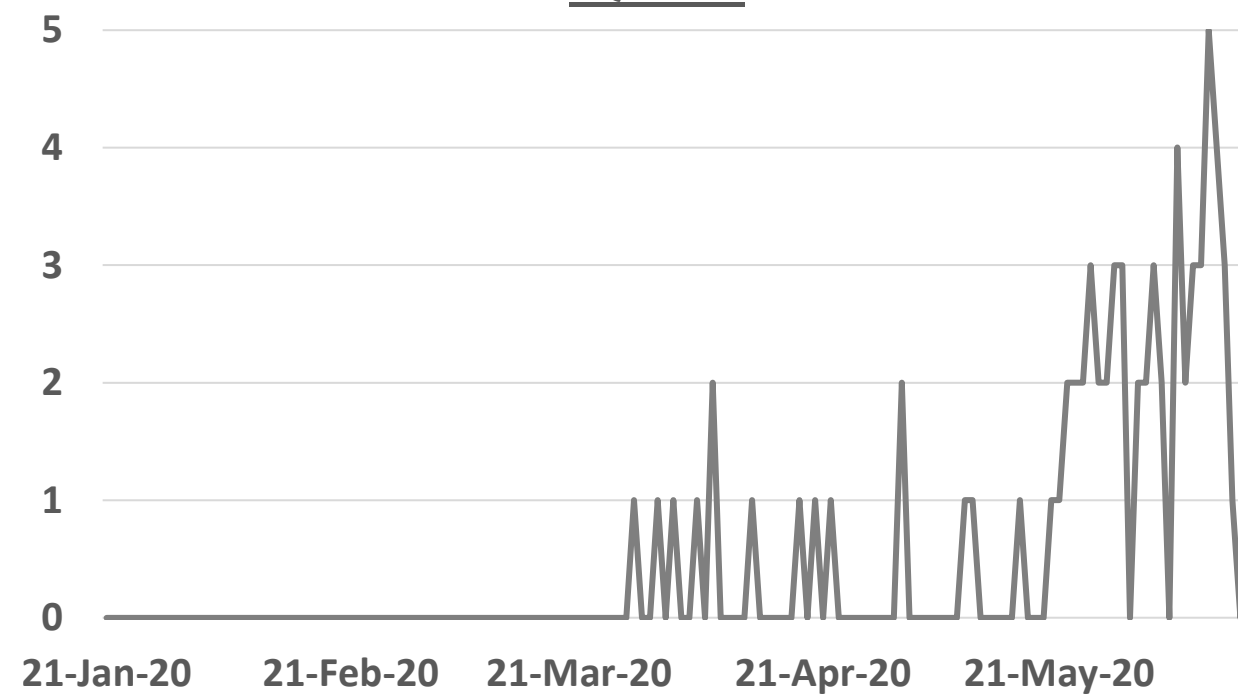
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 15, 2020)

KSA



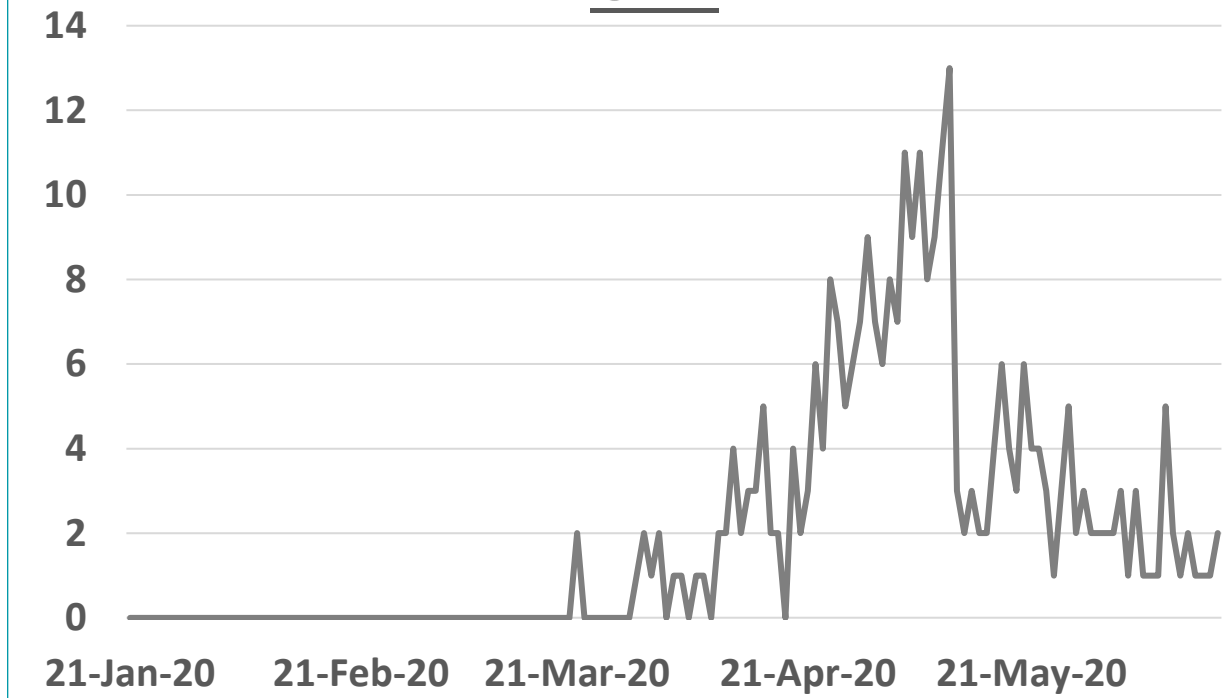
Source : KSA ministry of health

Qatar



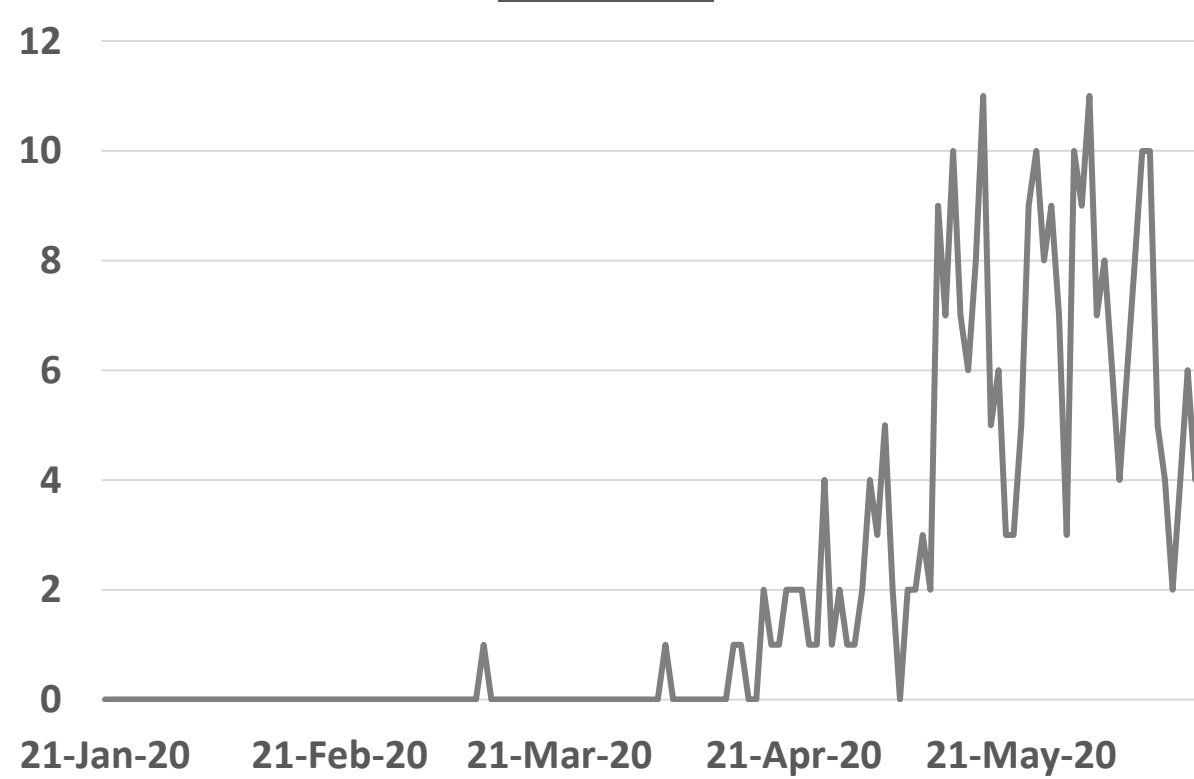
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

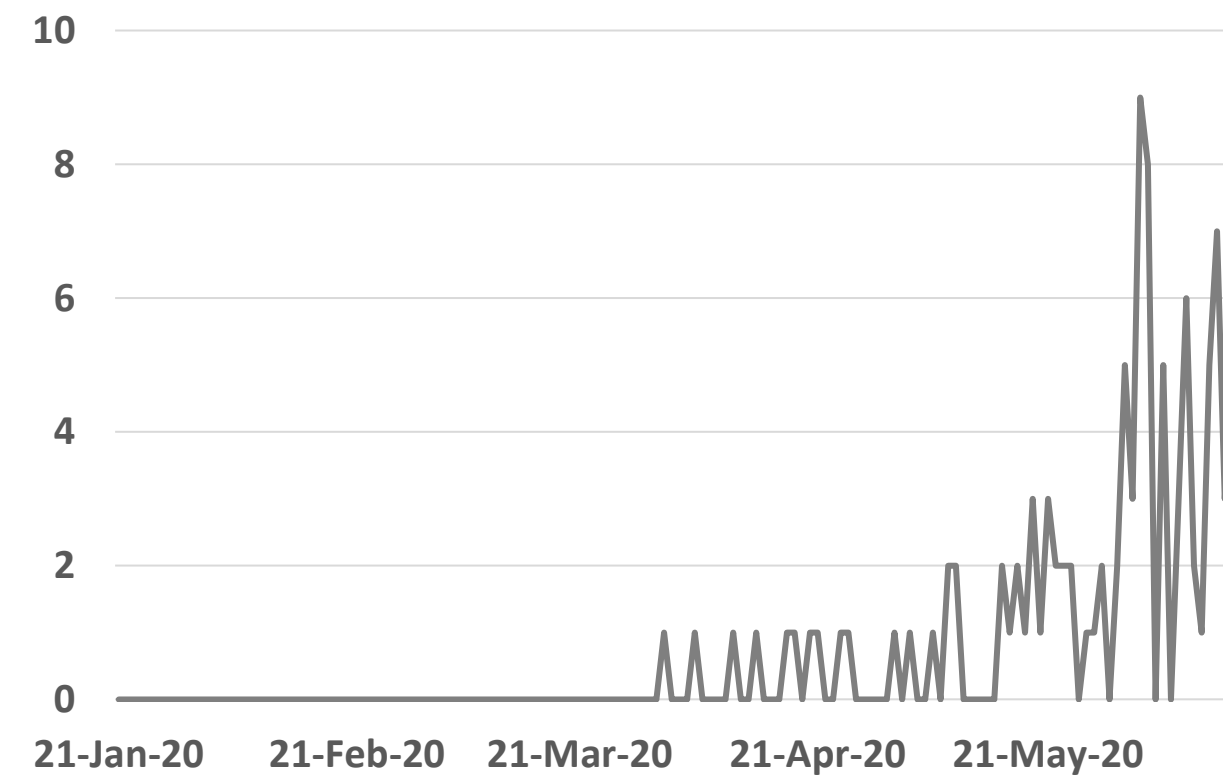
Kuwait



Source : Kuwait ministry of health

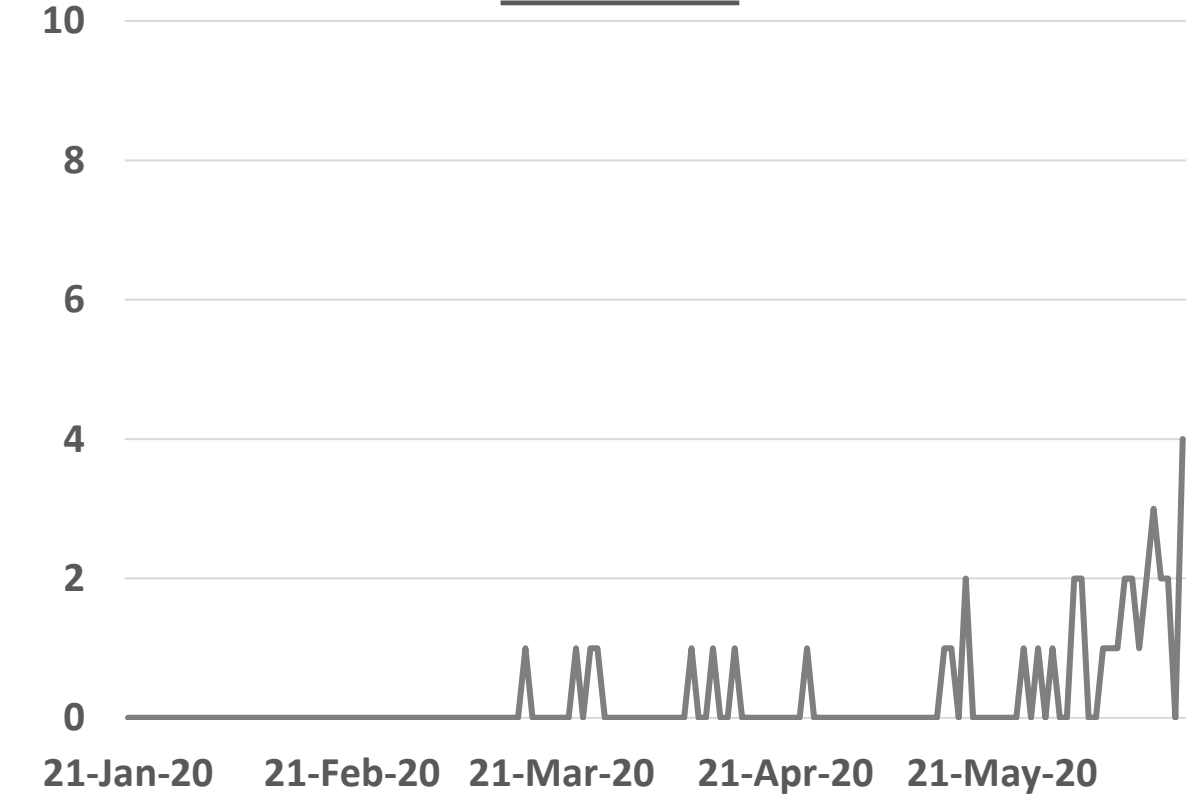
Oman

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Source :Oman ministry of health

Bahrain



Source :WHO

Public Health response



Article 1 : The importance of proper death certification during the COVID_19 pandemic:

Published: June 10, 2020 in [the JAMA](#)

Summary:

This article discusses the importance of accurate death certification related to COVID-19 disease to understand the extent and progression of the pandemic as a proper death certification, has been a long-standing challenge in the US. There is a known gap regarding proper death certification that affect the quality of public health data which in turn limits the ability to track the evolving COVID-19 pandemic.

Therefore NCHS recently released guidelines for the certification of COVID 19 death. In which they classified death in 2 groups:

1. Those in which the person has died from direct complications of laboratory-confirmed SARS-CoV-2 infection (such as acute respiratory distress syndrome, secondary bronchopneumonia).
2. Those with a compelling clinical history for SARS-CoV-2 disease but were either not tested for COVID-19 or the test was negative.

Additional efforts are required by medical examiners to emphasize this to physicians and other health care professionals. **This can be accomplished through collaboration with the department of public health by publishing and disseminating updated guidelines about which deaths need to be reported and what is acceptable death certificate terminology.**



Article 2 : Off-label therapy targeting pathogenic inflammation in COVID-19

Published: June 12, 2020 in [the Nature](#)

Summary:

- The article discusses multiple drugs that have been used to treat SARS-COV2. It focuses on a promising immunomodulatory called Thymosin α 1.
- Thymosin α 1 may boost immunity **at an early and late stages** of SARS-CoV-2 infection and, like cytokine-specific antagonists, may adversely affect the cytokine storm by promoting immune tolerance and tissue homeostasis in the severe respiratory stage.
- T α 1 has been registered as a treatment or prevention of **respiratory viral infections and as an immune adjuvant in influenza vaccination of the elderly and hemodialysis patients**. Either in monotherapy or in combination with IFN- α , T α 1 has been **approved in 30 countries for treatment of chronic viral infections**, including chronic hepatitis, chronic hepatitis C, and HIV.
- During the 2009 pandemic outbreak of H1N1 influenza, **T α 1 provided an earlier and greater response to the vaccine in a clinical study with monovalent H1N1 vaccine**
- T α 1 has been included in a recent randomized, open, controlled trial in combination with darunavir/cobicistat or lopinavir/ritonavir in the treatment of COVID-19 (registration number ChiCTR2000029541)
- Thus T α 1 holds promise for representing an ideal candidate drug that, as suggested, **will boost immunity at an early stage of SARS-CoV-2 infection and promote immune tolerance and tissue homeostasis** in the severe respiratory stage.
- Even though virtual screening makes it possible to discover molecules relatively quickly, these compounds still **need to be experimentally tested before clinical use**. Drug repurposing, with a breadth of a dual activity against the virus and the host, may thus rightly come into play with safety and low cost.



Public Health response

Article 3: COVID-19 and Acute Ischemic Stroke- A Case Series from Dubai, UAE

Authors: Maria Khan, Rasha H M Ibrahim, Shaista A Siddiqi, FCPS
2Yousry Kerolos, Muhammad M Al-Kaylani, Suhail A AlRukn, Derk W Krieger.

Affiliation: Rashid Hospital, Dubai, UAE, Saudi German Hospital, Dubai, UAE, Mediclinic City Hospital, Dubai, UAE

Published: June 8, 2020 in [the international Journal of stroke](#)

Summary:

- First published data on cases of stroke related to COVID19 in the UAE.
- 22 cases of ischemic stroke in patients with positive PCR for SARS-COV2.
- Clinical feature and presentations as in table 1..
- Most patients were still admitted at the time of reporting, and the outcomes were therefore ascertained at variable times (Range 6 to 21 days from stroke onset).

Conclusion

- The majority of patients presented with stroke symptoms as first evidence of their COVID-19 infection, and the stroke mechanism was predominantly affecting large arteries.

Table 1: Characteristics of Stroke patients with COVID-19	Numbers (%)
Age- Mean age in years (SD)	46.3 (11.1)
Cases < 55 years	20 (90.9)
Male sex	20 (90)
Ethnicity	
Indian	11 (50)
Pakistani	9 (40.9)
Filipino	2 (9.1)
Vascular Co-morbidities (any)	14 (63.6)
Diabetes	8
Hypertension	7
Ischemic Heart Disease	2
Dyslipidemia	2
Prior Stroke	1
Stroke as first presentation	18 (81.8)
Symptoms and/or CXR abnormality suggestive of COVID-19 at time of stroke	16 (72.7)
CT Angiography done	19 (86.4)
Major Vessel Occlusion	16 (84.2)



Public Health response

Article 4: Coronavirus (COVID-19) Update: FDA Revokes Emergency Use Authorization for Chloroquine and Hydroxychloroquine

Published : June 15,2020 in [FDA website](#)

Summary:

- The FDA have published in their website a news release of HCQ and HC for the treatment of COVID19.
- the U.S. Food and Drug Administration (FDA) revoked the emergency use authorization (EUA) that allowed for chloroquine phosphate and hydroxychloroquine sulfate donated to the Strategic National Stockpile to be used to treat certain hospitalized patients with COVID-19 **when a clinical trial was unavailable, or participation in a clinical trial was not feasible.**
- The FDA decision was made based on the evidence of lack of benefit.
- The FDA also added in their news page: *Additionally, in light of ongoing serious cardiac adverse events and other potential serious side effects, the known and potential benefits of chloroquine and hydroxychloroquine no longer outweigh the known and potential risks for the authorized use.*