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Scientific Research Monitoring on COVID-19

20 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



Today's 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

Transmission: A study examining household transmission found that secondary attack rate range from 12-17% and SARS-CoV-2 can be transmitted within households and during incubation period and pre-symptomatic and asymptomatic transmission has been observed

Vaccine : article discusses about the current situation of bidding war between countries to reserve vaccination shall be stopped and governance is needed to deliver vaccine globally.

Treatment: another study examine the risk of use antihypertensive drugs (ACE/ ARBs) in covid19 patient showed no risk compared to non-users or with other type of antihypertensive.



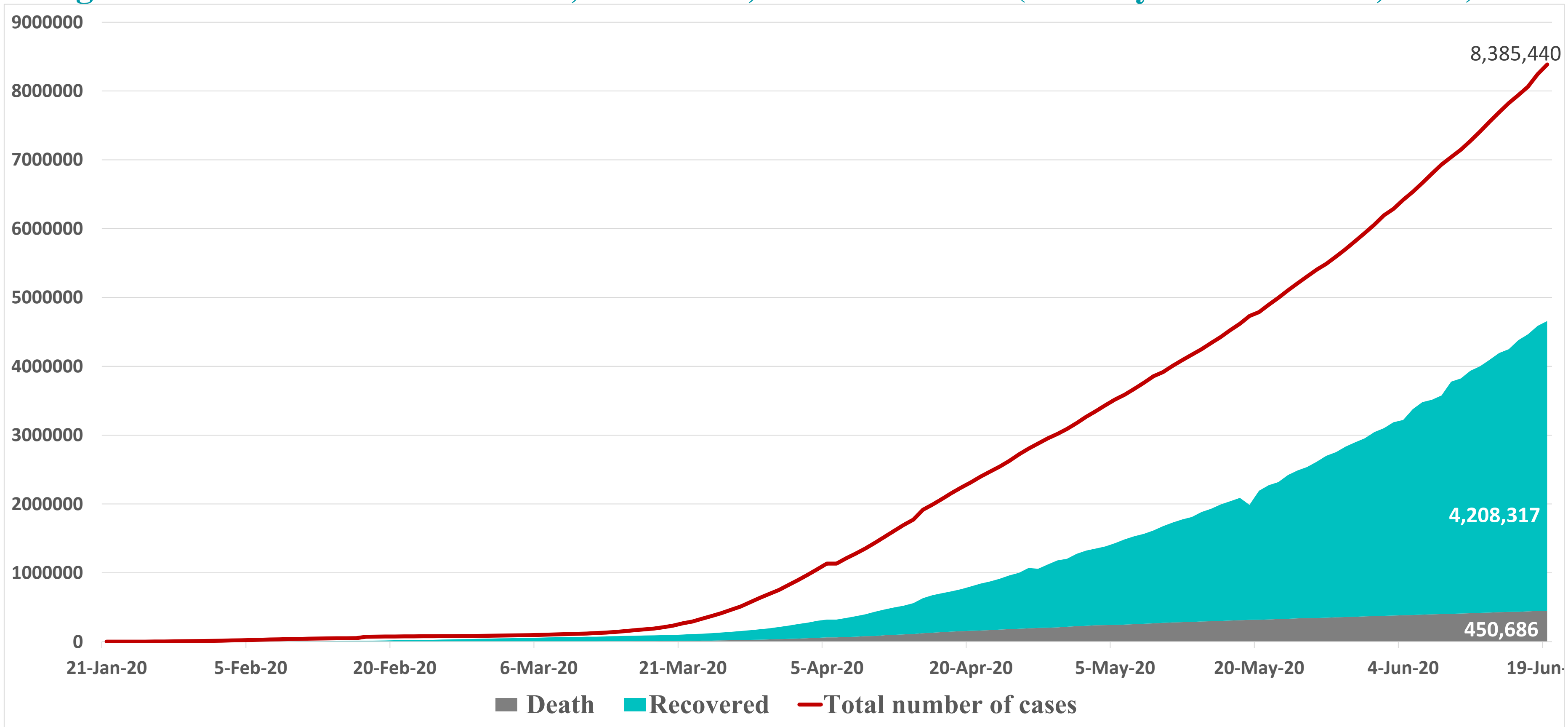
WHO Daily Report 19 June 2020

- The hydroxychloroquine arm of the Solidarity Trial, which seeks to find an effective COVID-19 treatment, **is being stopped**. The decision is based on evidence from the Solidarity Trial, the UK's Recovery trial and a Cochrane review of other evidence on **hydroxychloroquine**. Data shows that **hydroxychloroquine** does not result in the reduction of mortality of hospitalized COVID-19 patients, when compared with standard of care.
- Dr Tedros announced the roll out of the WHO Academy, a major new initiative as part of WHO's transformation. With the WHO Academy, WHO aims to build one of the world's largest and most innovative digital learning platforms to enhance the competencies of health professionals. So far, courses on the OpenWHO.org have received **almost 3.5 million enrolments on 12 topics in 31 languages**.
- Several countries affected by COVID-19 have seen increases in levels of violence occurring in the home, including violence against children, intimate partner violence and violence against older people. A new brief, addressing violence against children, women and older people during the COVID-19 pandemic, outlines key actions that the health sector can undertake to prevent or mitigate interpersonal violence.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to Jun 19, 2020)

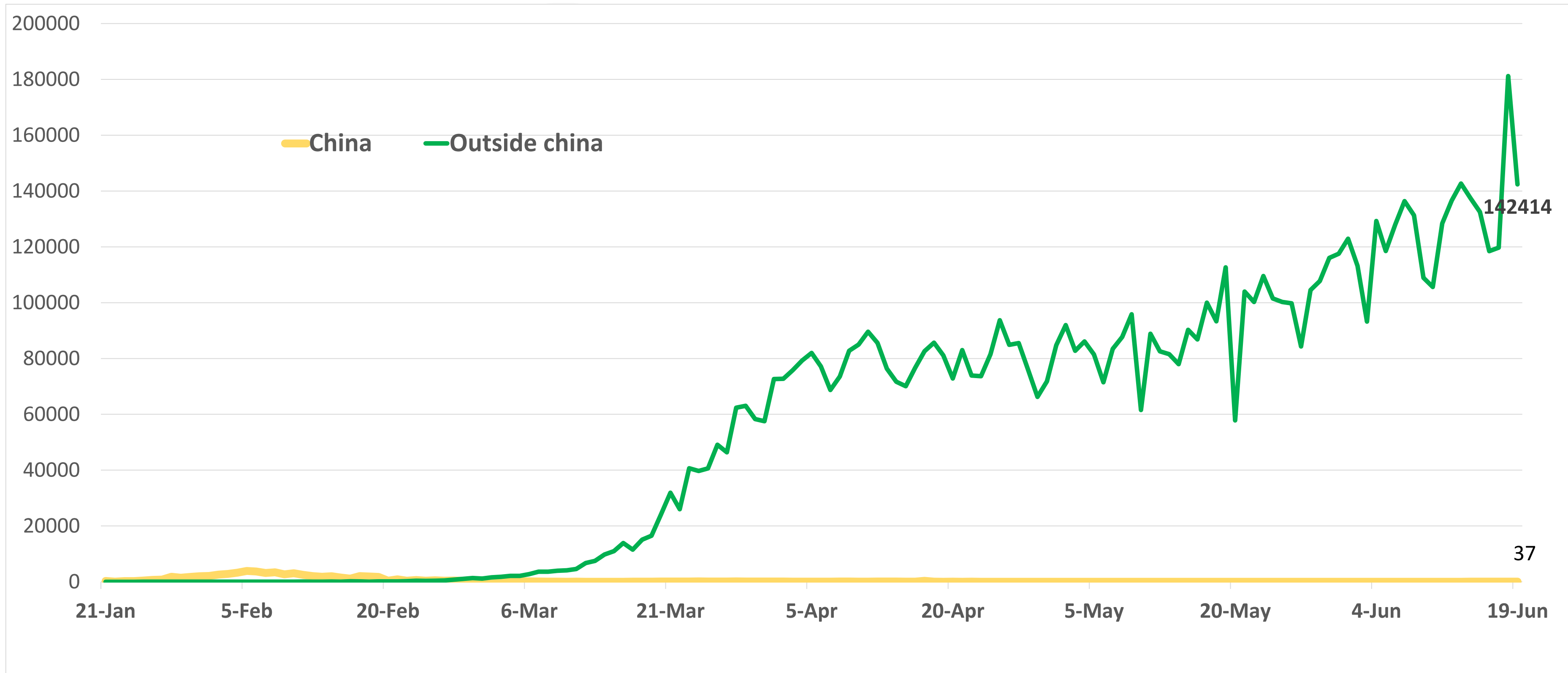


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



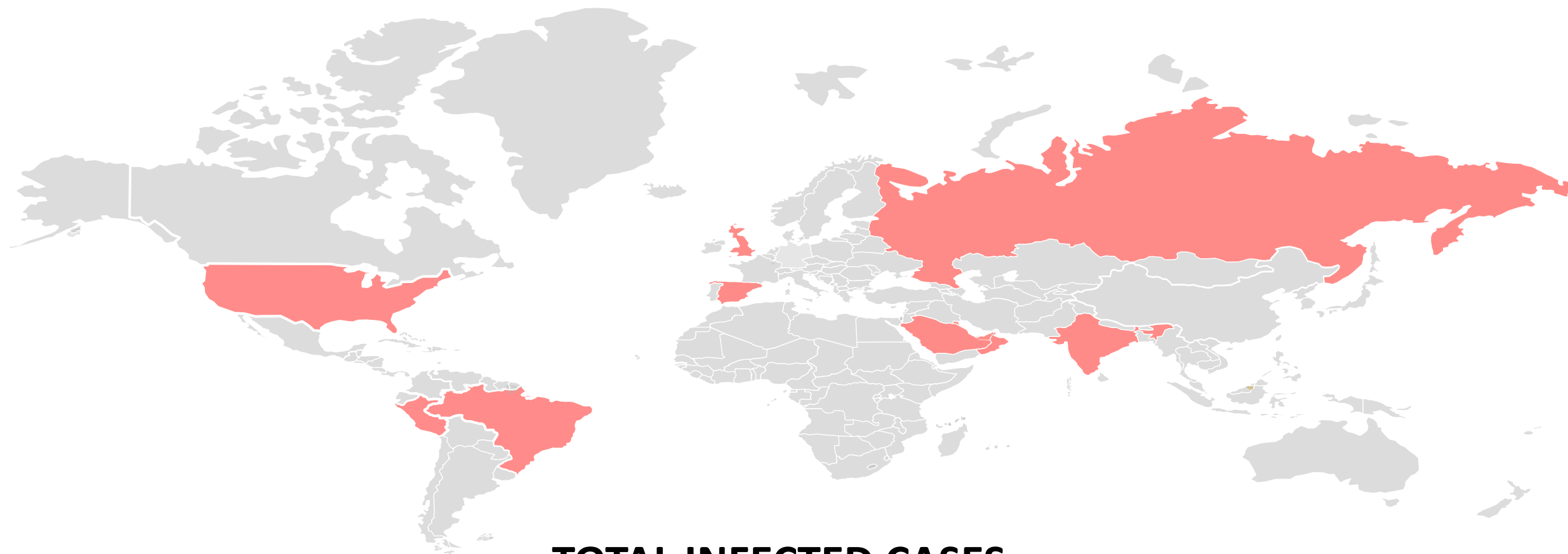
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

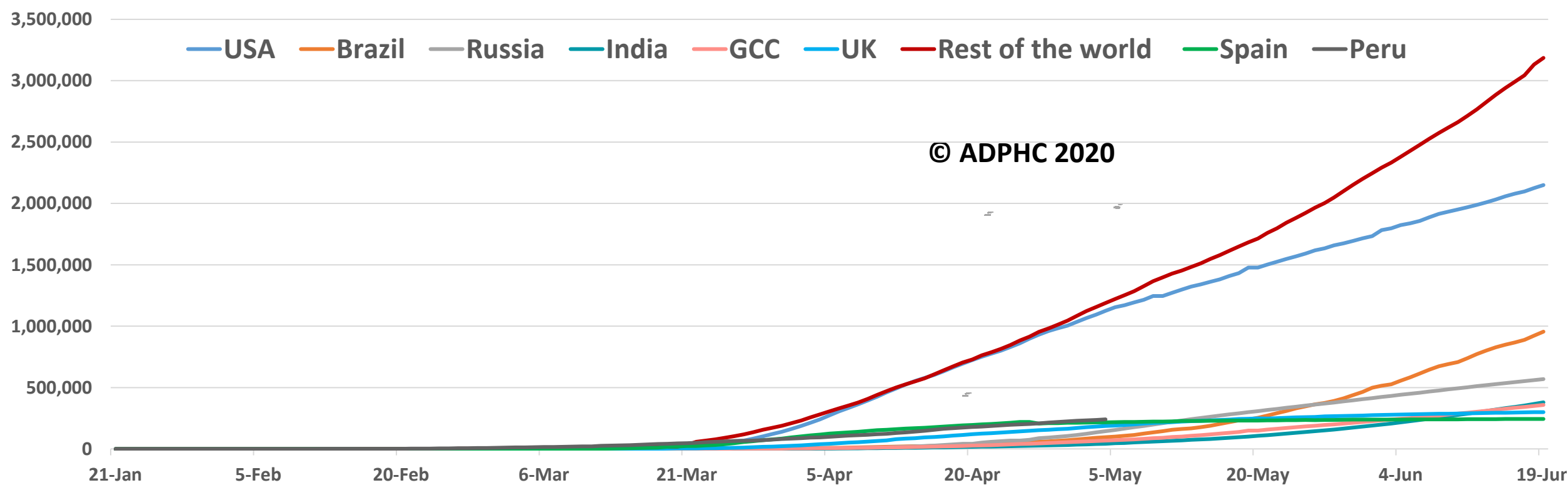
Epidemiology



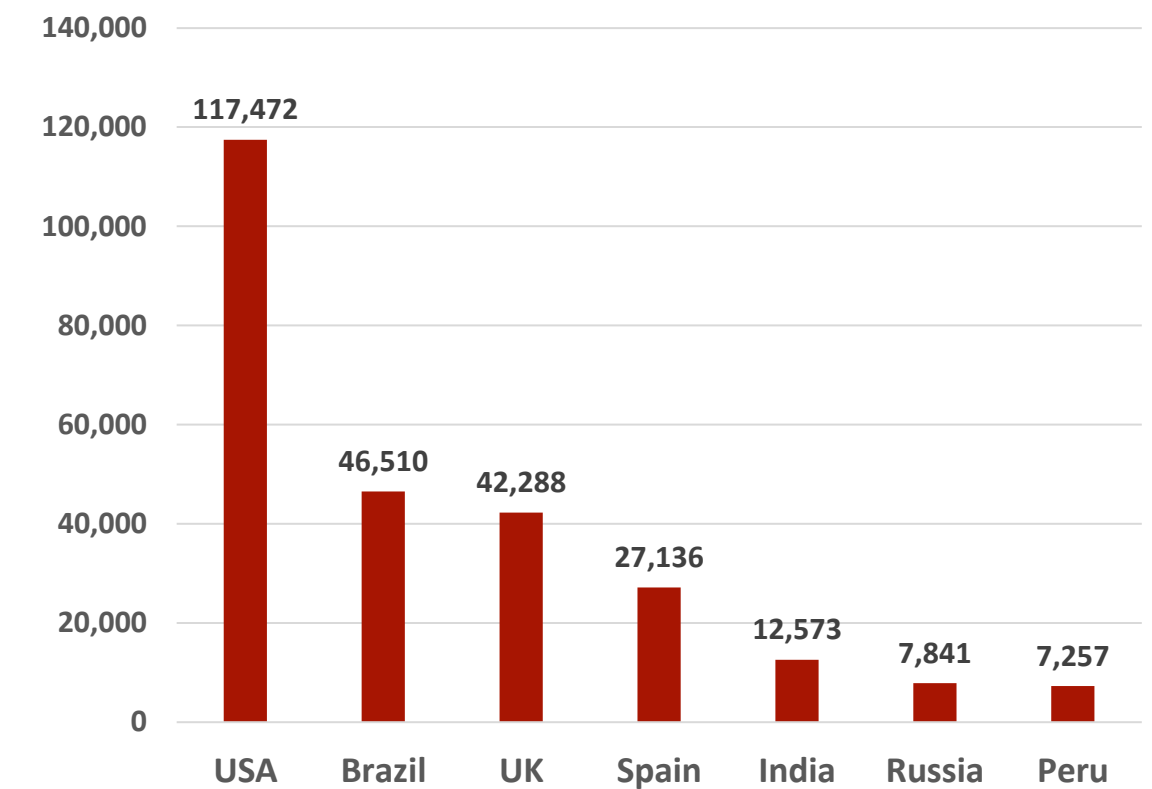
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 19, 2020).



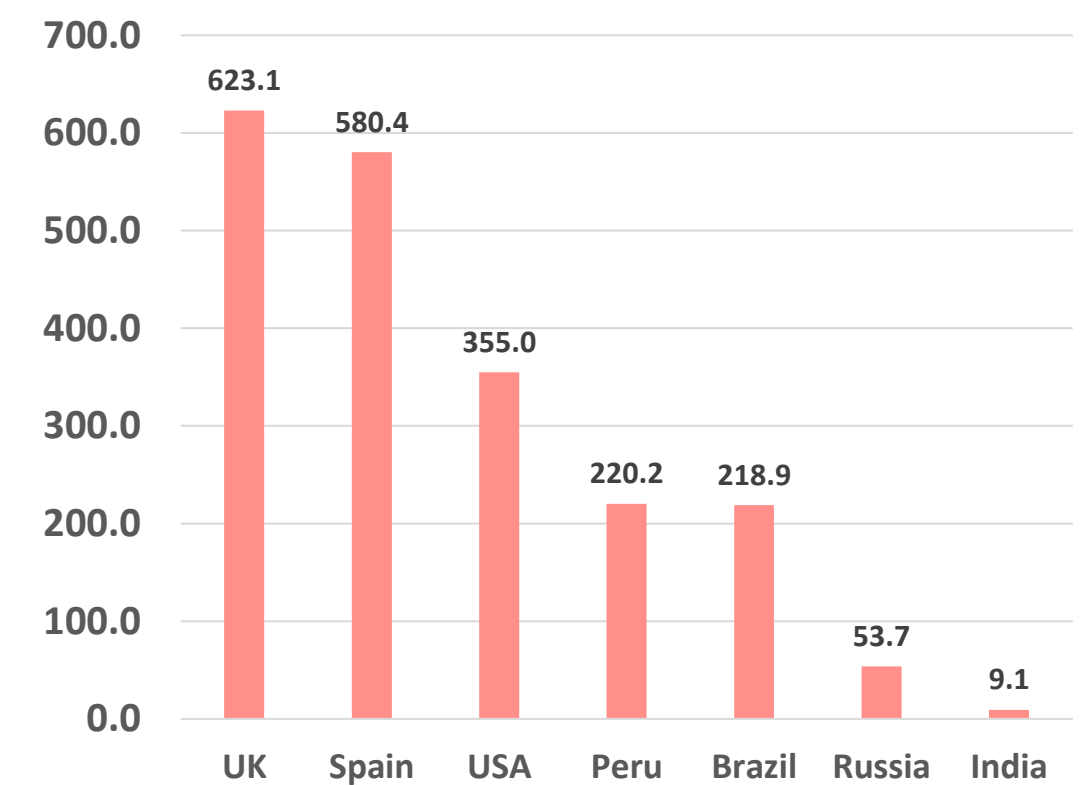
TOTAL INFECTED CASES



TOTAL DEATHS



DEATHS PER MILLION

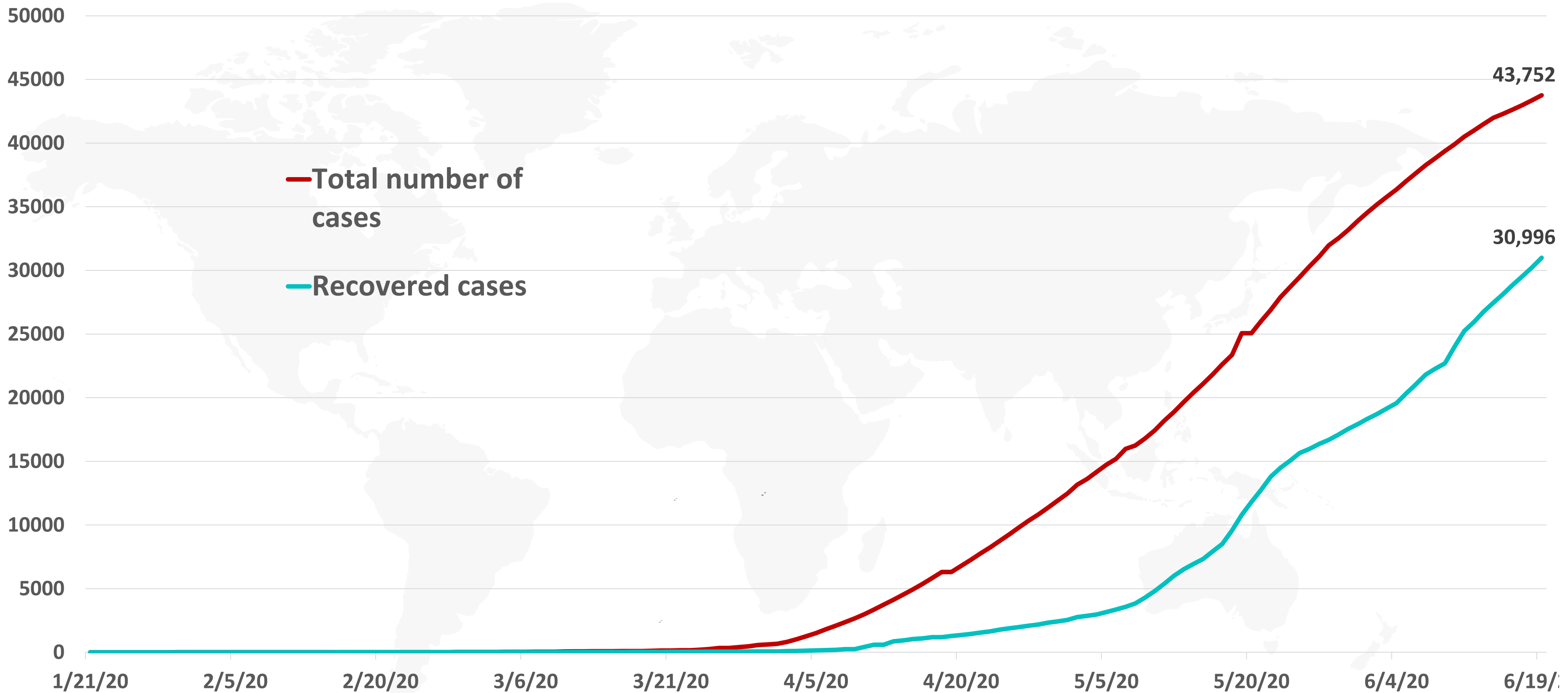


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



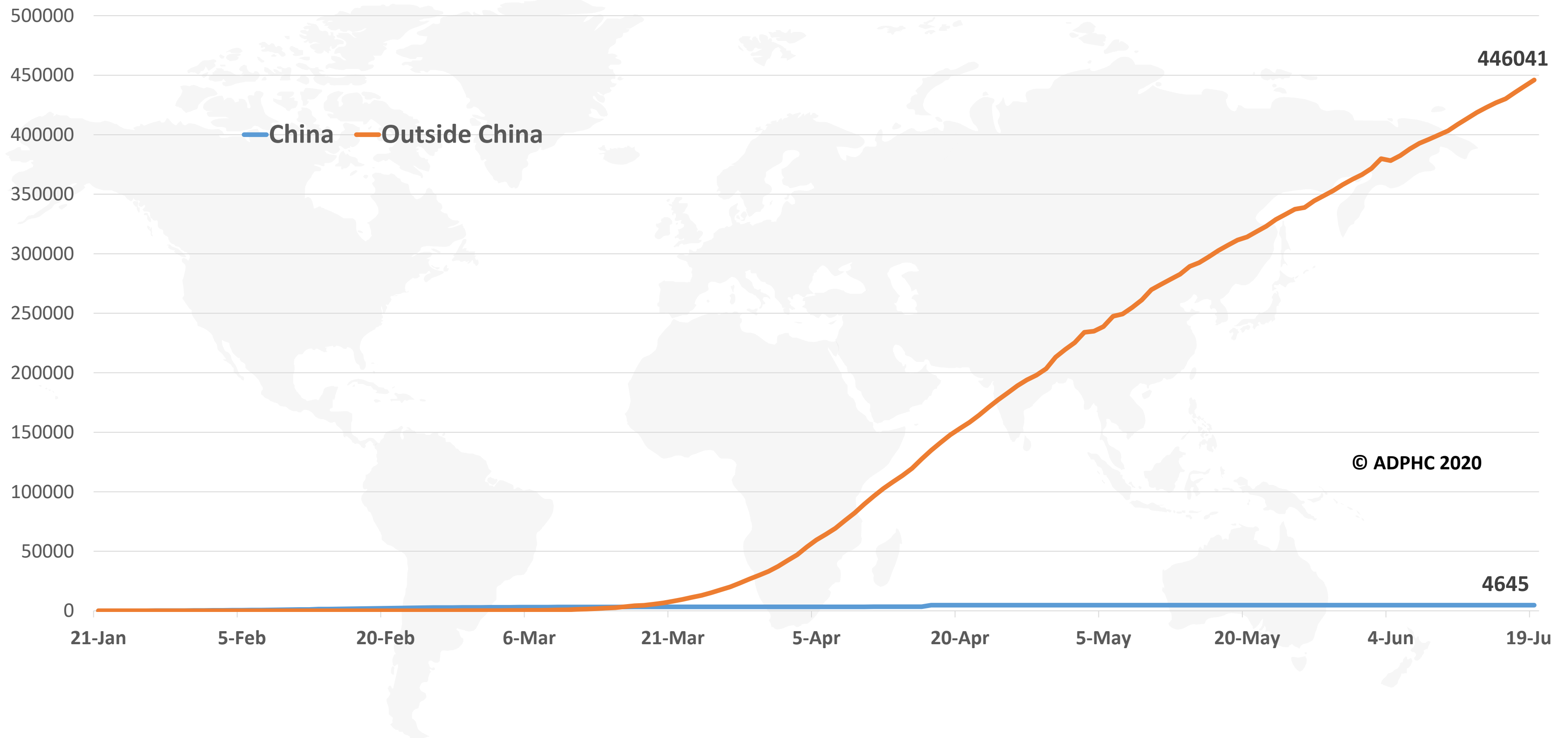
Line graph published by Abu Dhabi Public Health Center 2020.

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 19, 2020).

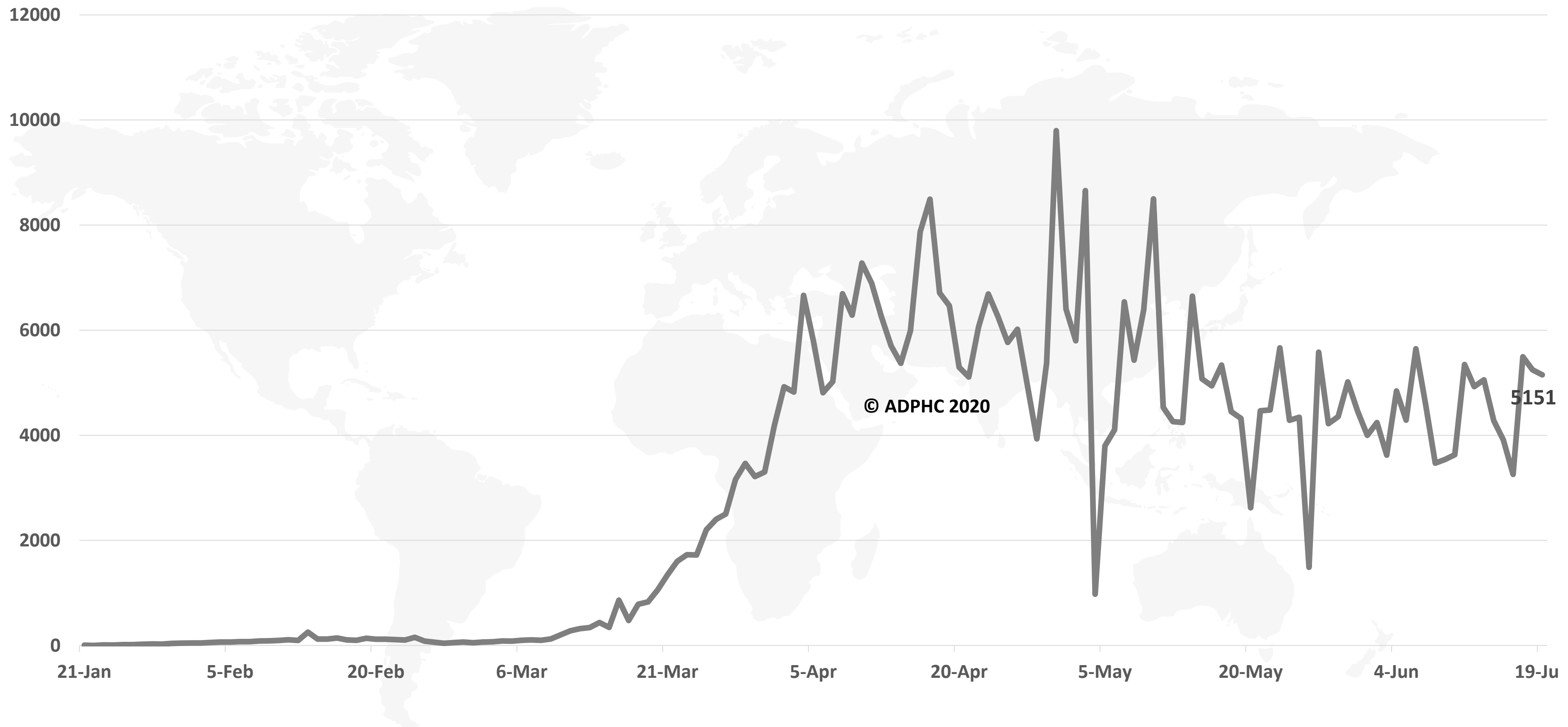


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



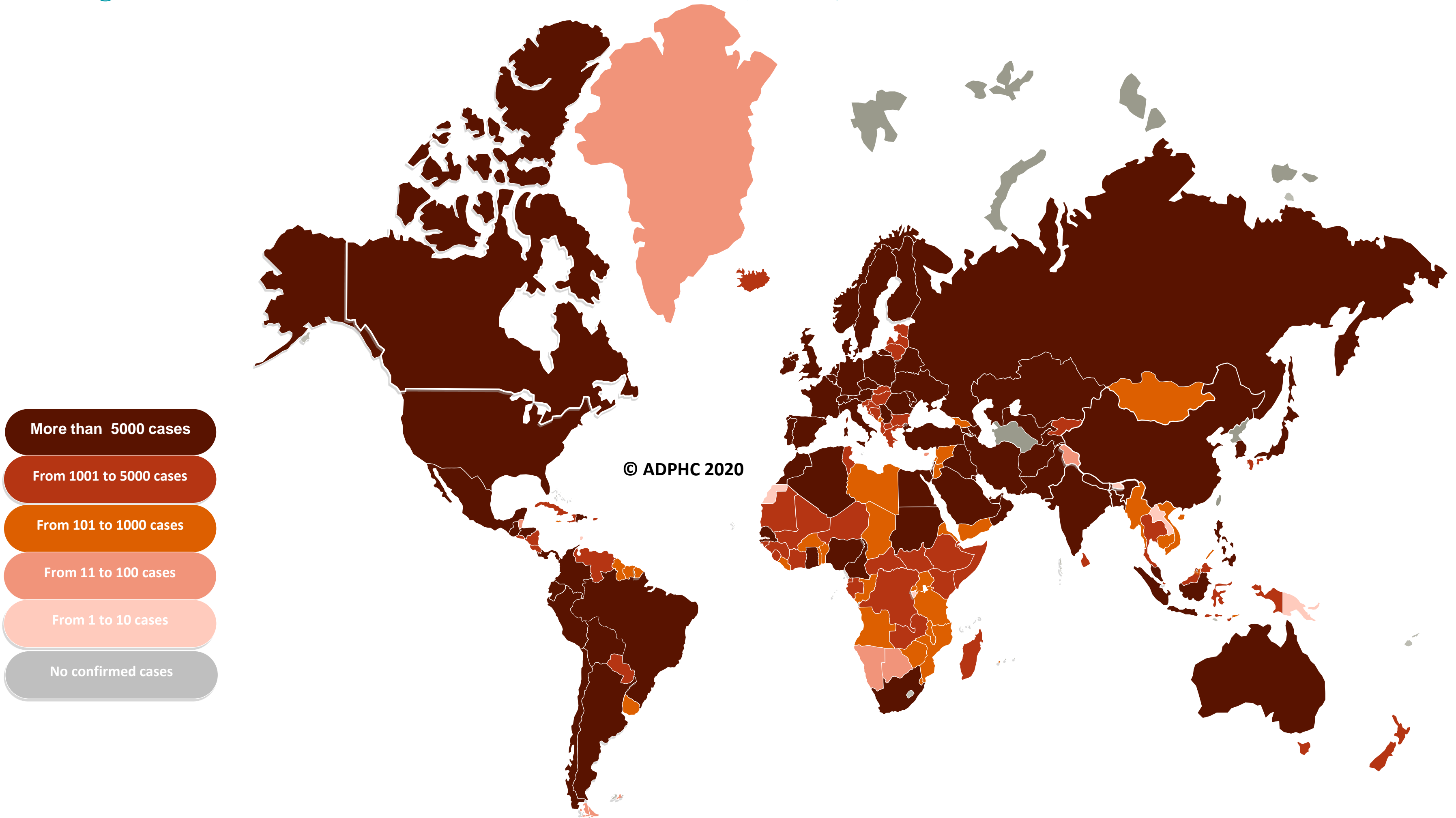
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



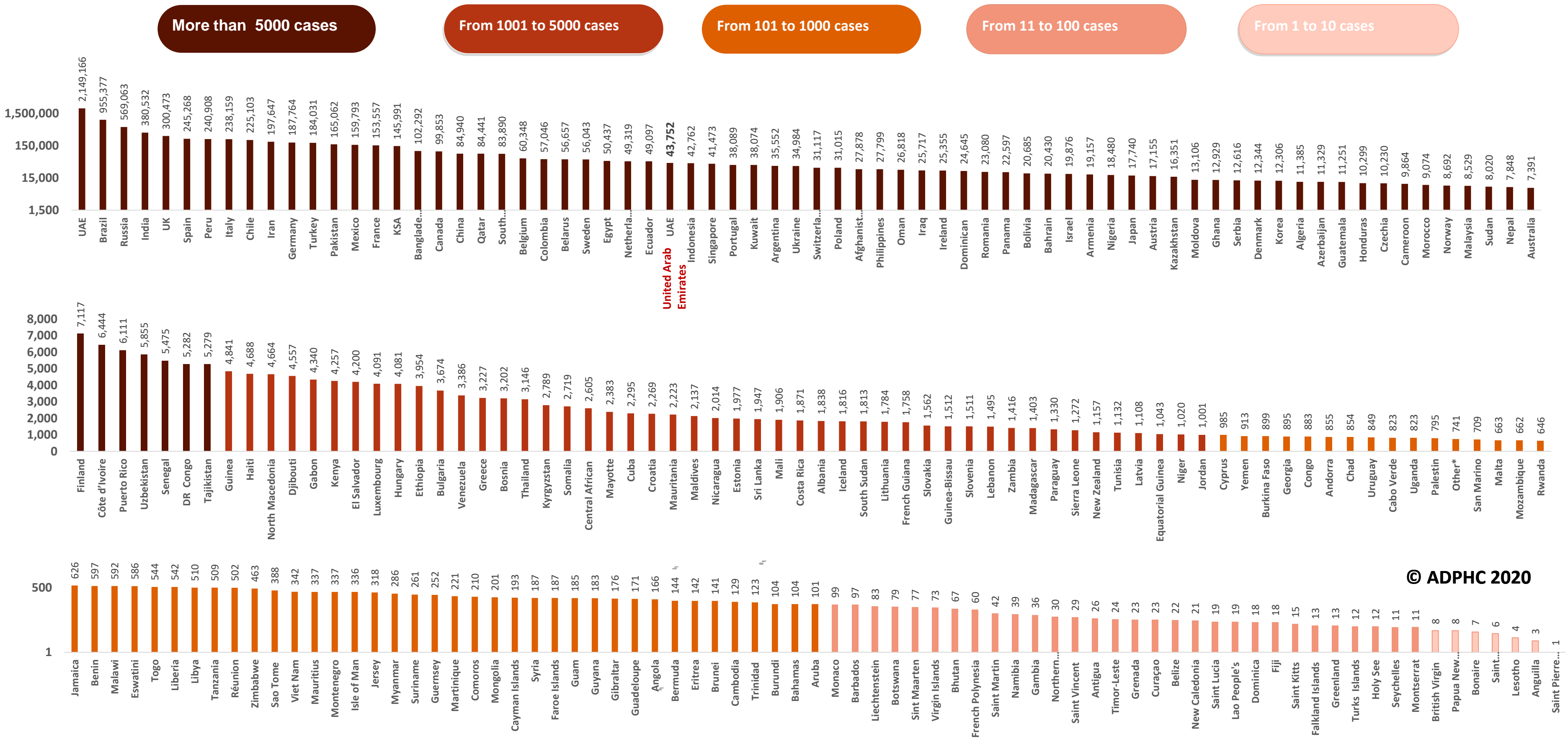
Figure 7a : Global distribution of COVID-19 cases (Jun 19, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 19, 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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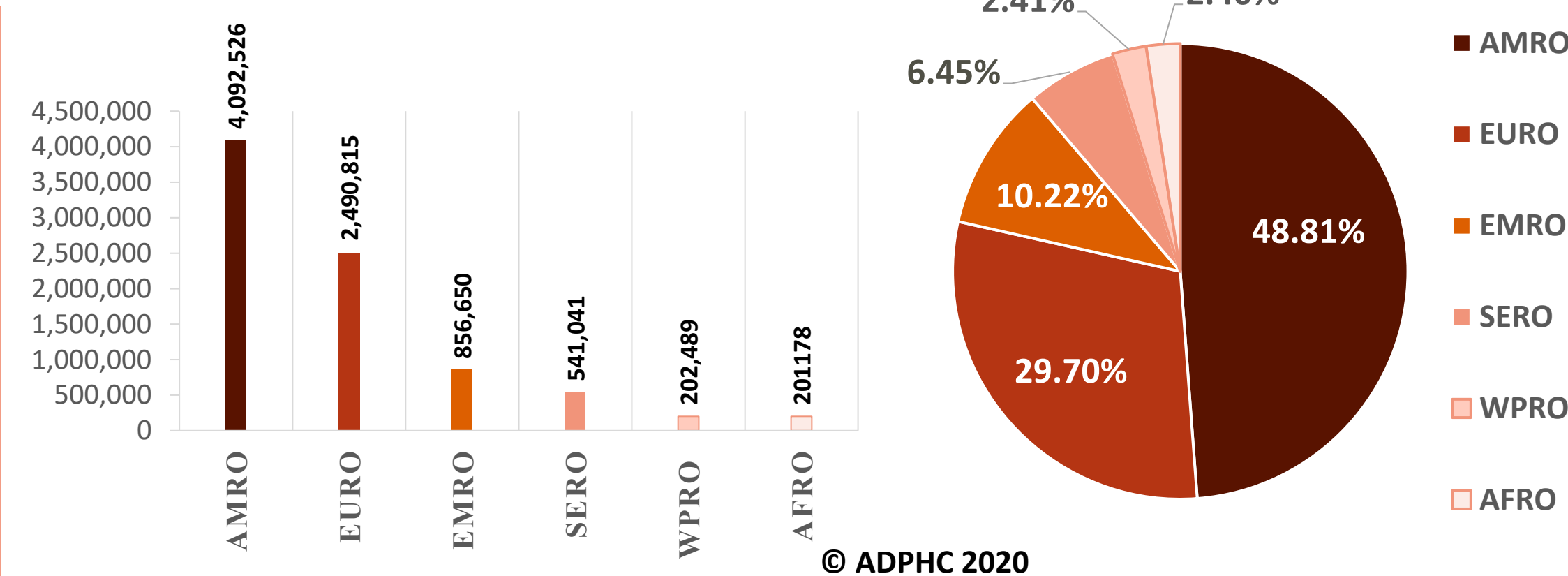
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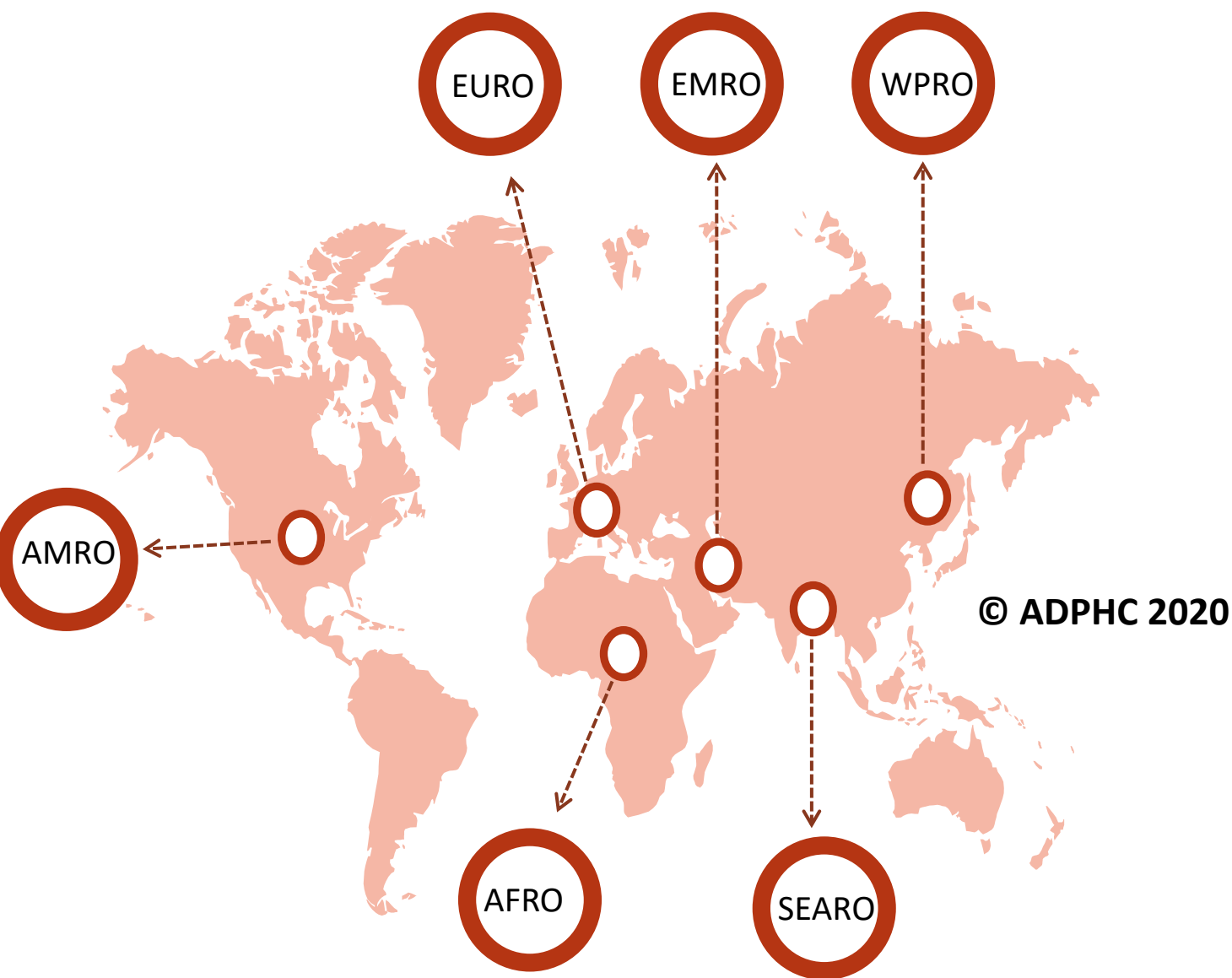
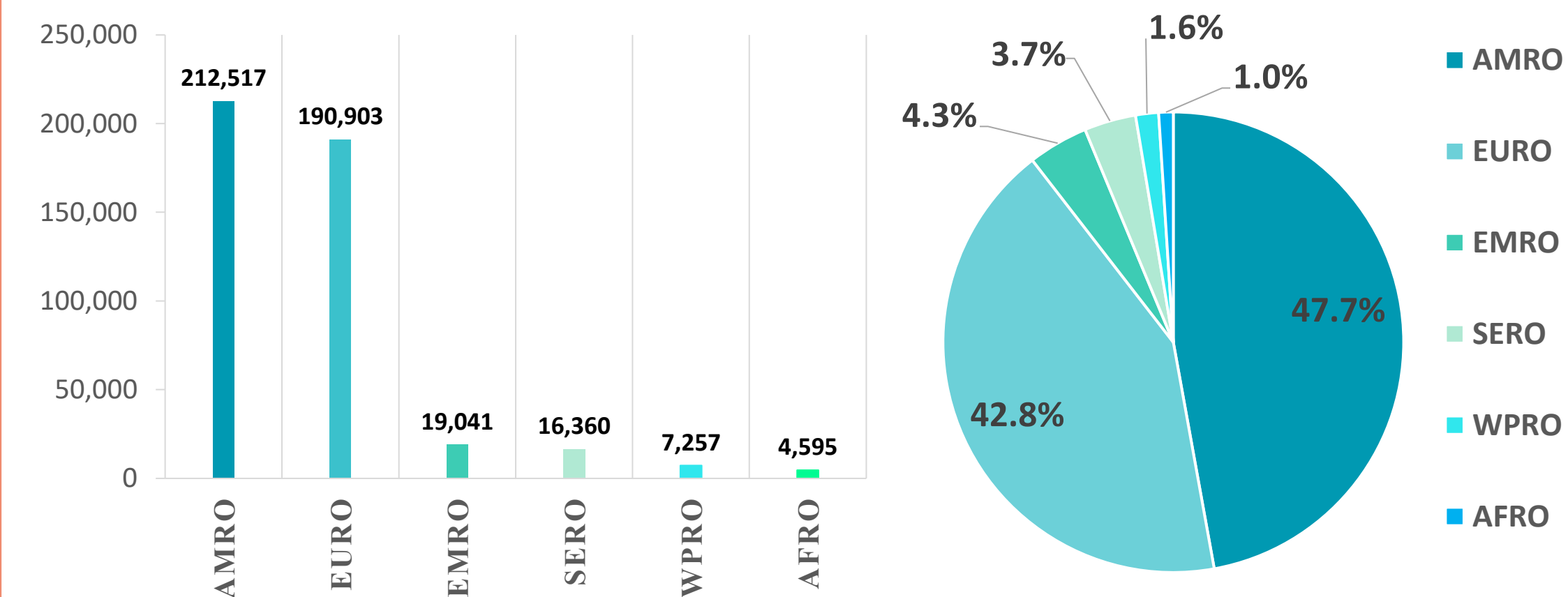


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 19, 2020)

INFECTED



DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

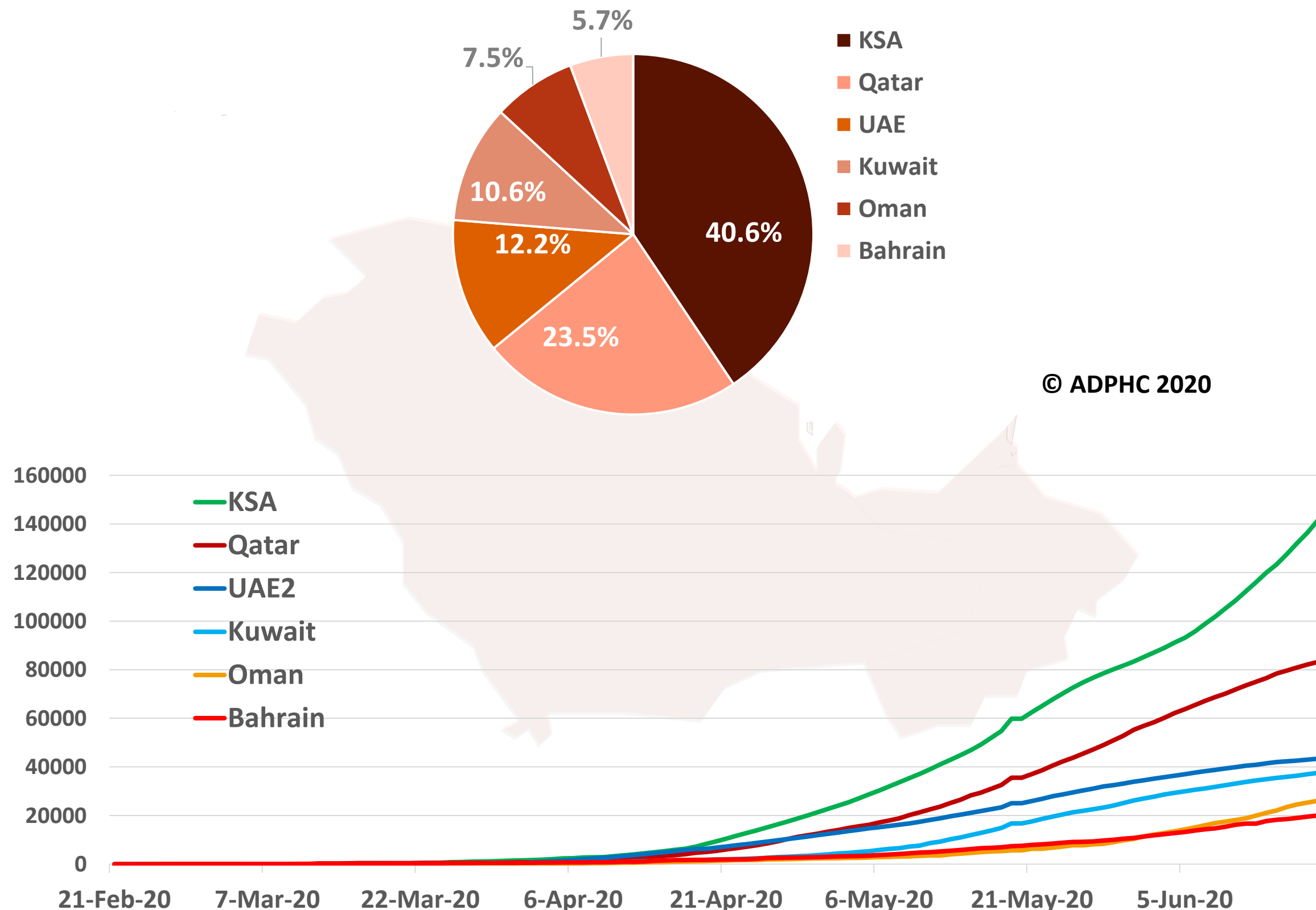
Data resources: [WHO](https://www.who.int/)

Epidemiology

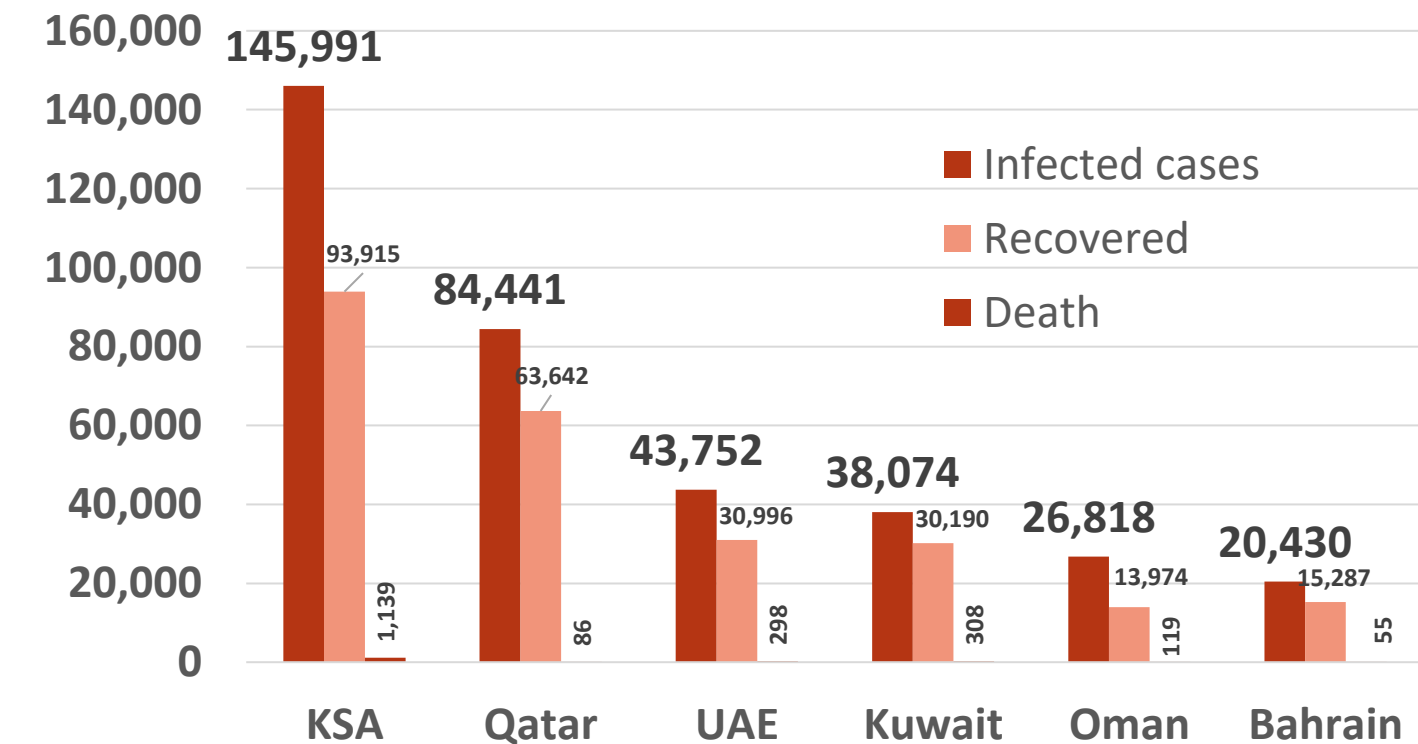


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 19, 2020)

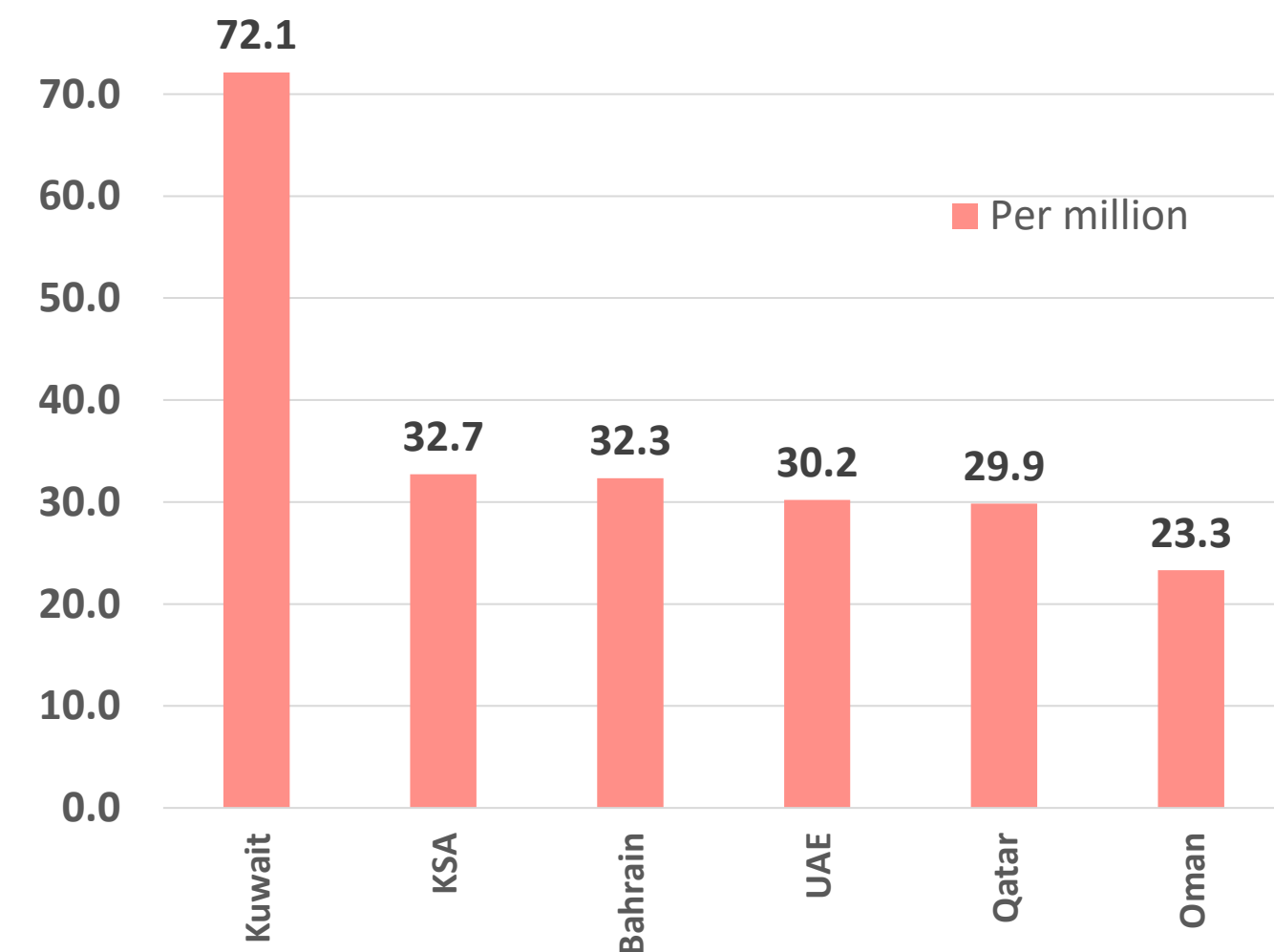
TOTAL NUMBER OF INFECTED CASES



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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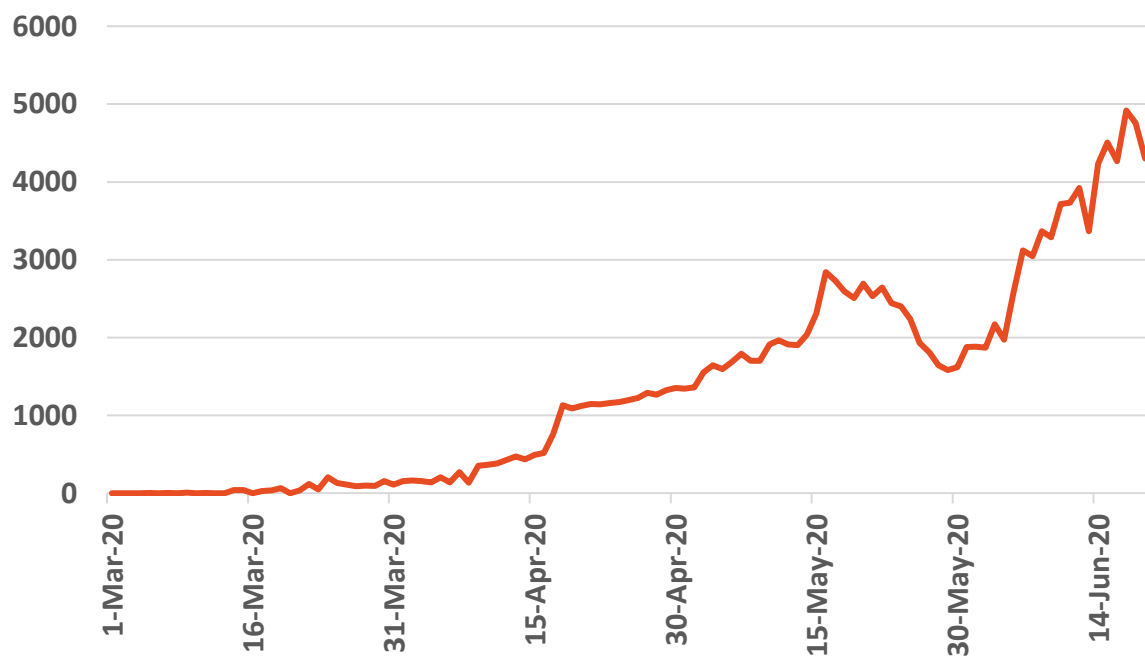
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Epidemiology



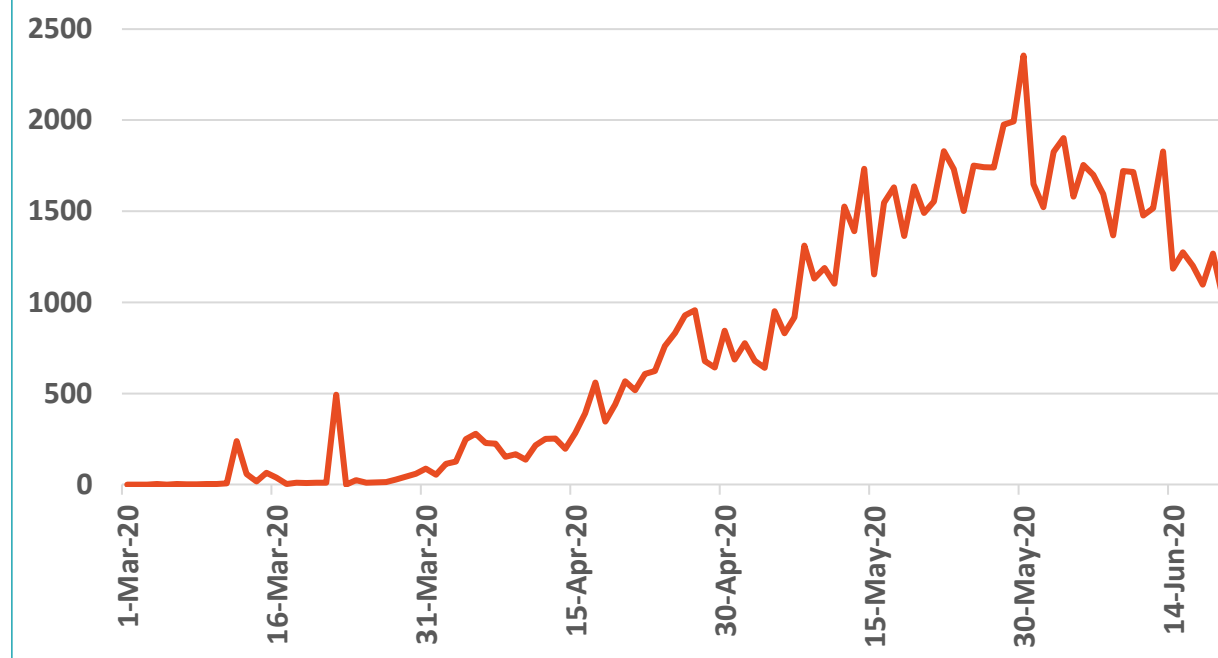
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 19, 2020)

KSA



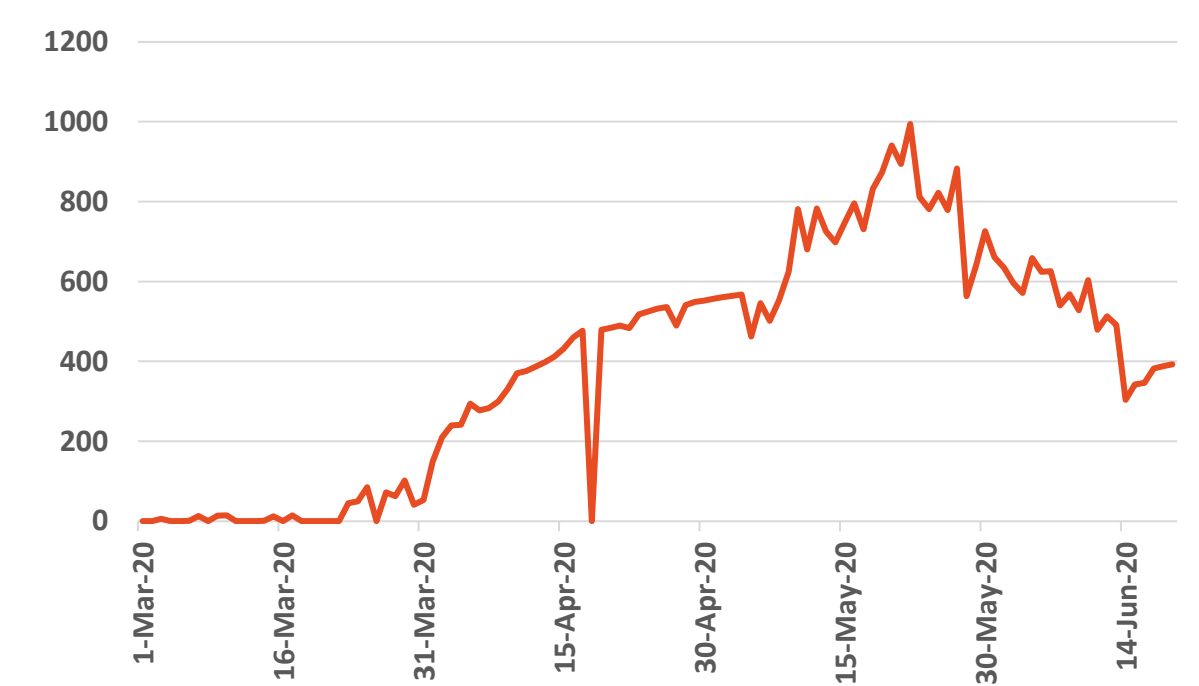
Source : KSA ministry of health

Qatar



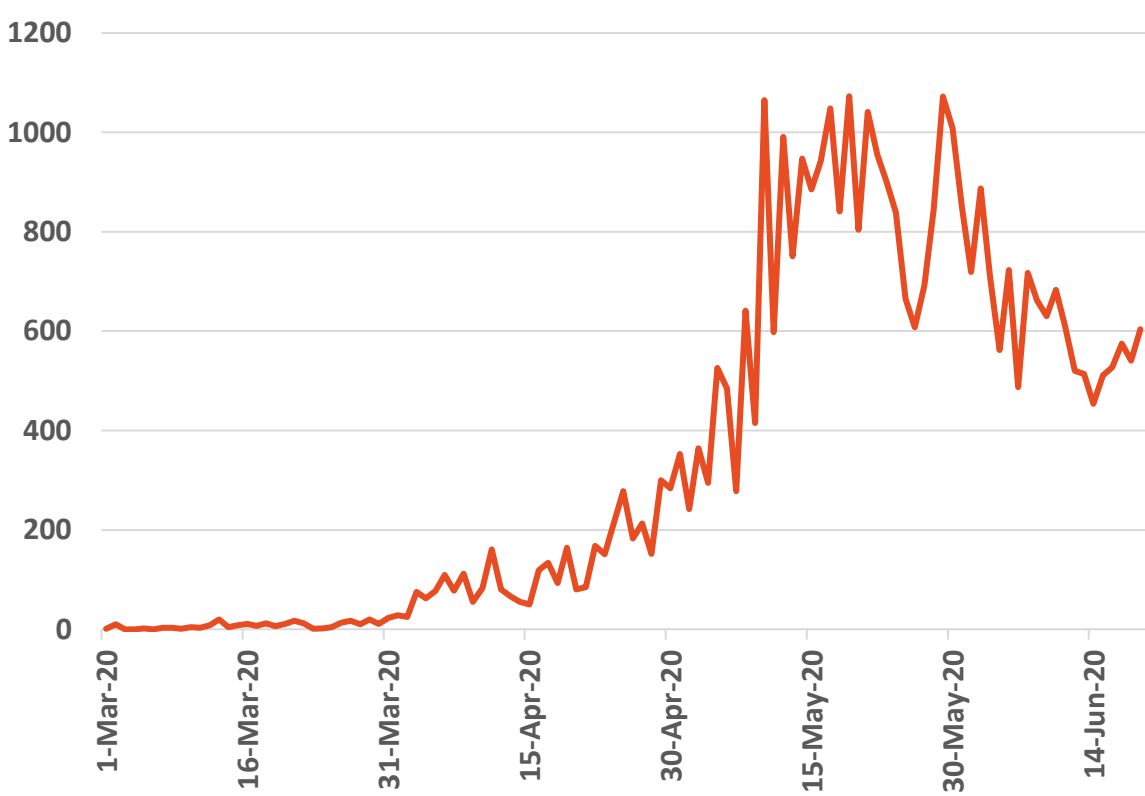
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

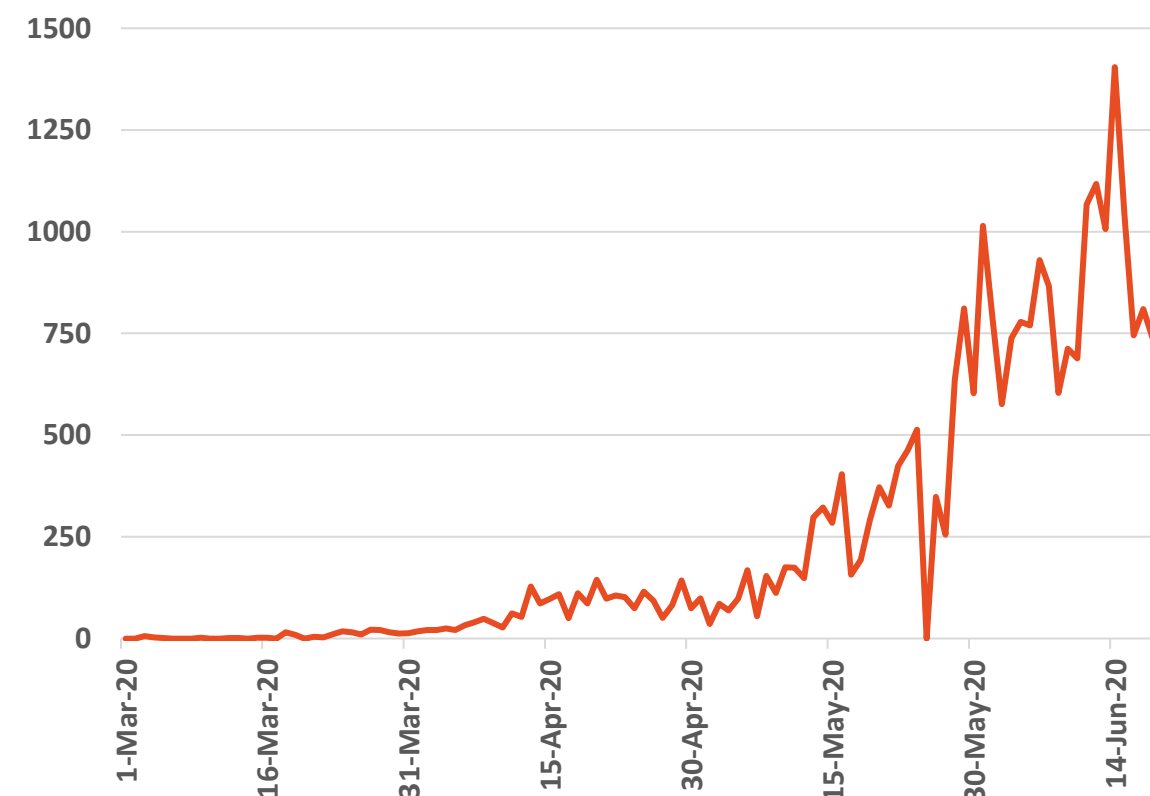
Kuwait



Source : Kuwait ministry of health

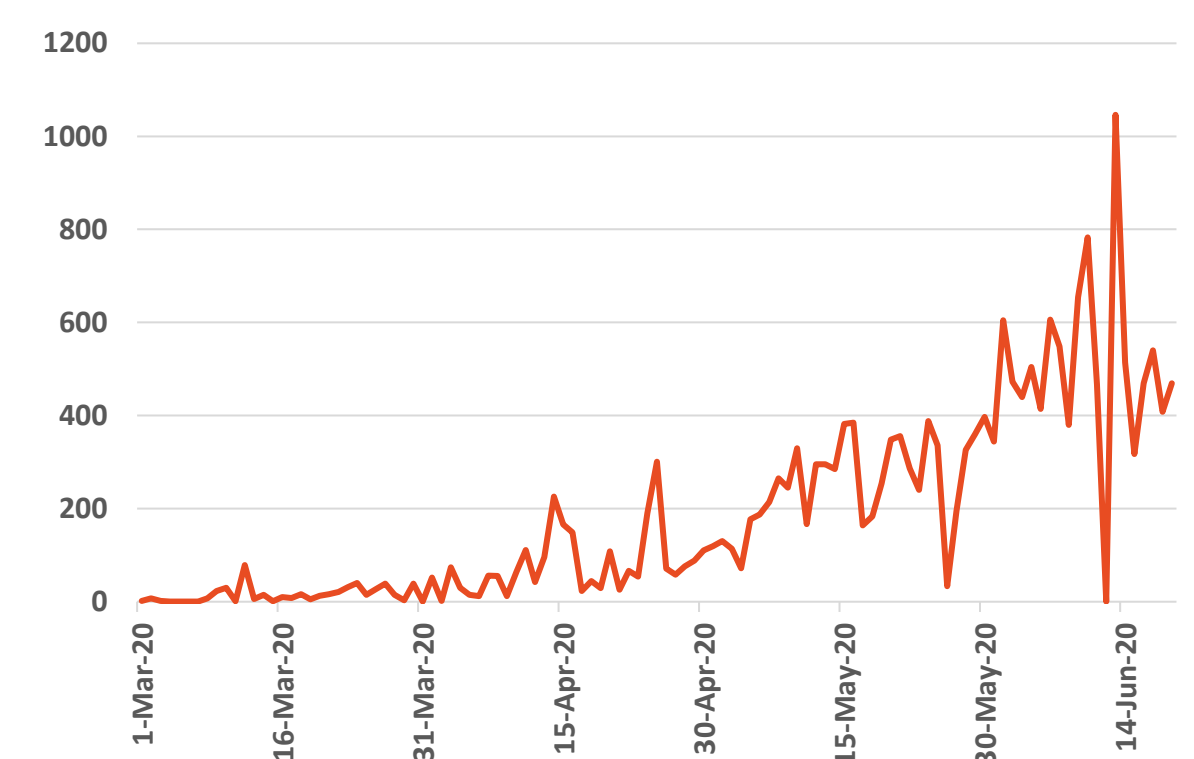
Oman

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Source : Oman ministry of health

Bahrain



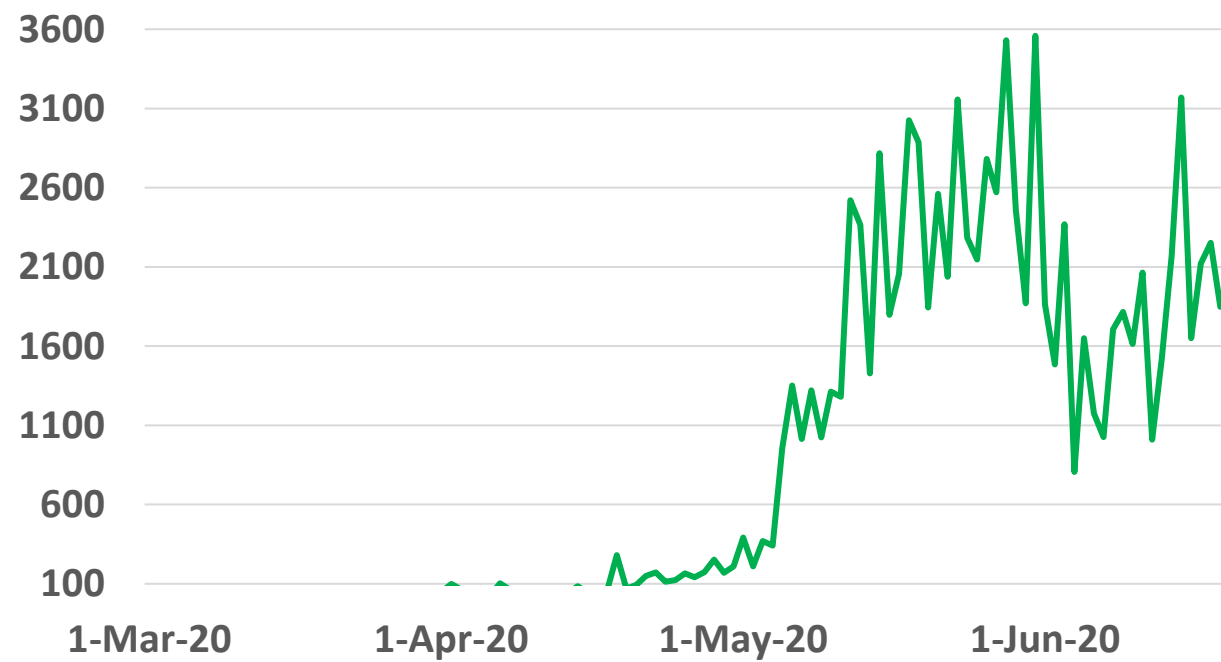
Source : WHO

Epidemiology



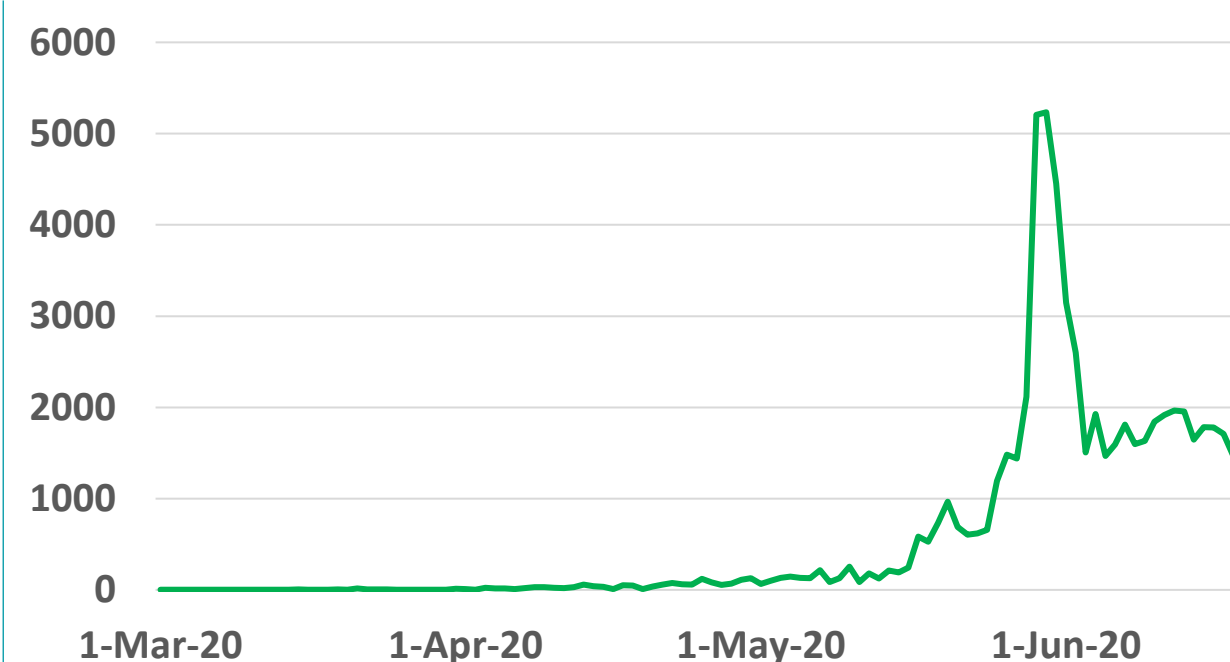
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 19, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

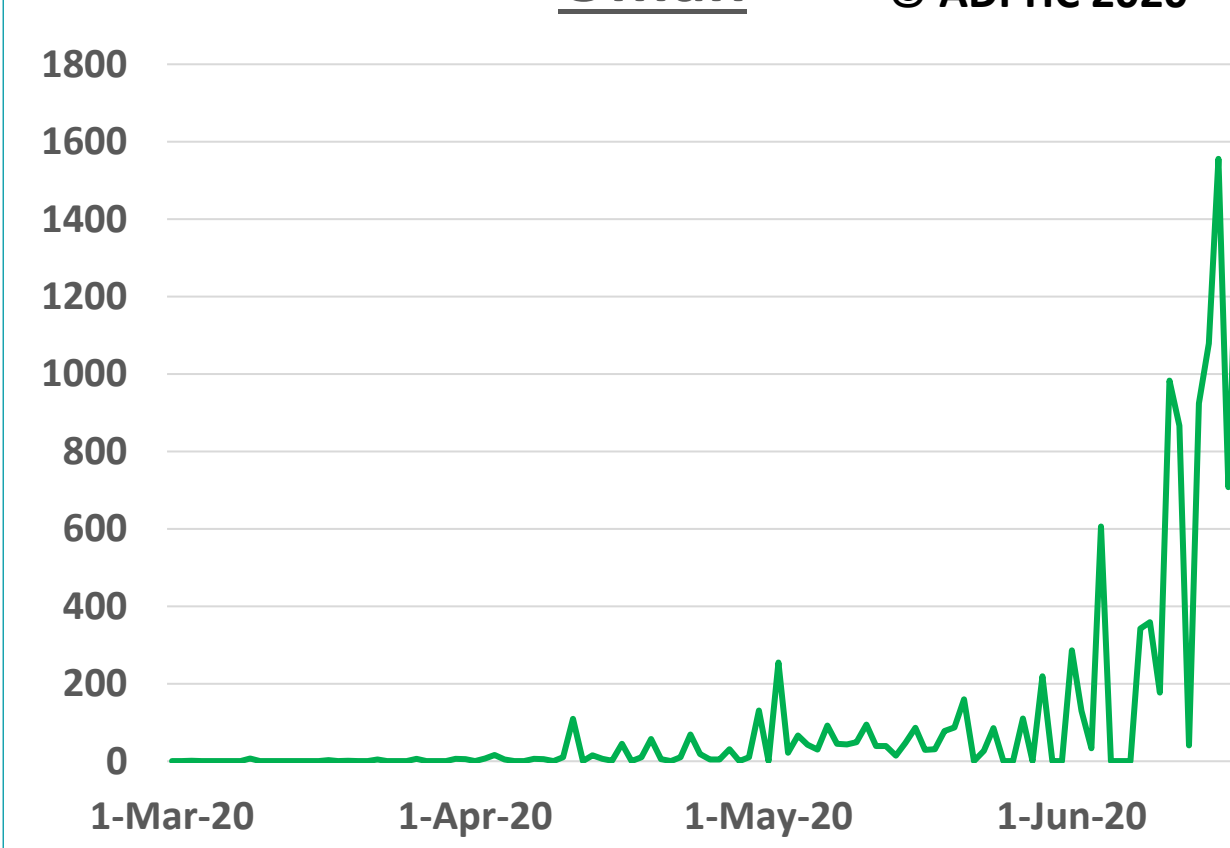
Kuwait



Source : Kuwait ministry of health

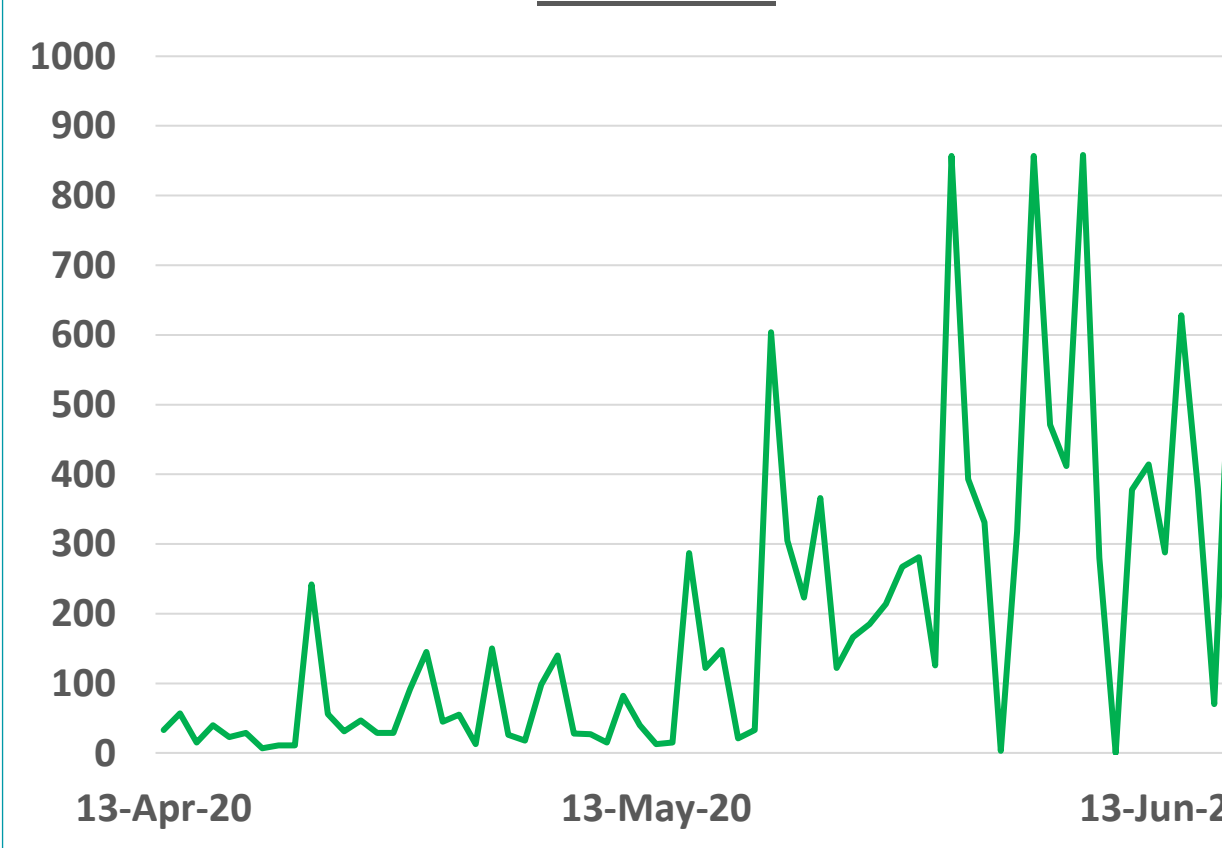
Oman

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Source : Oman ministry of health

Bahrain



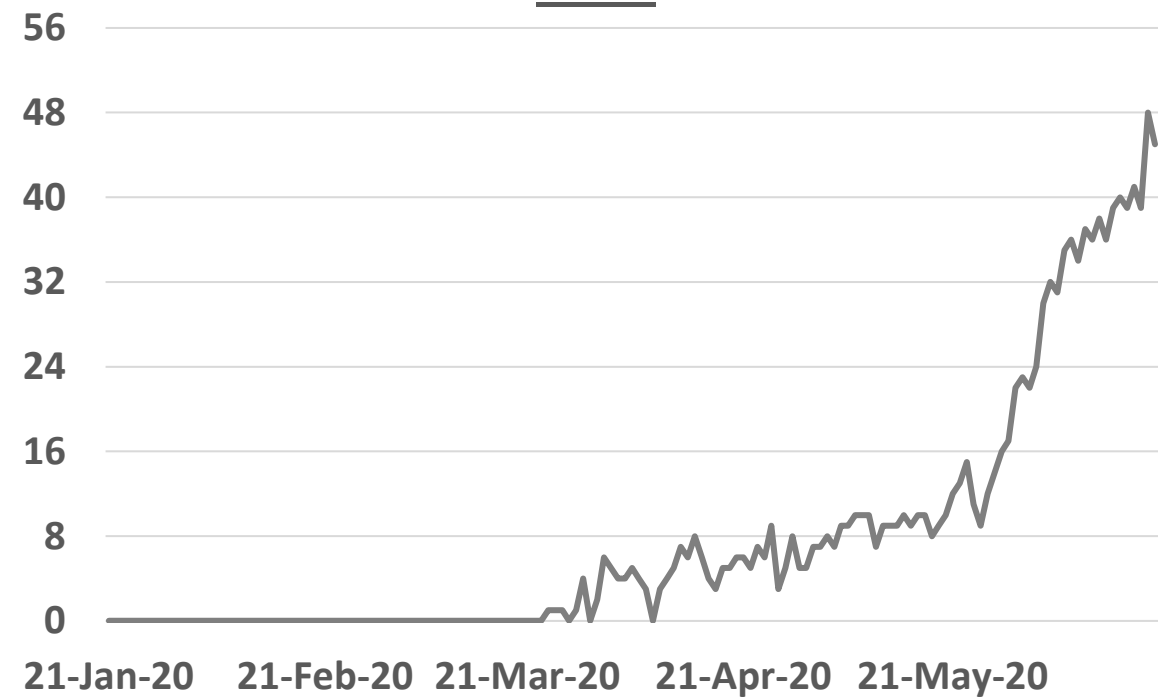
Source : GCCStat

Epidemiology



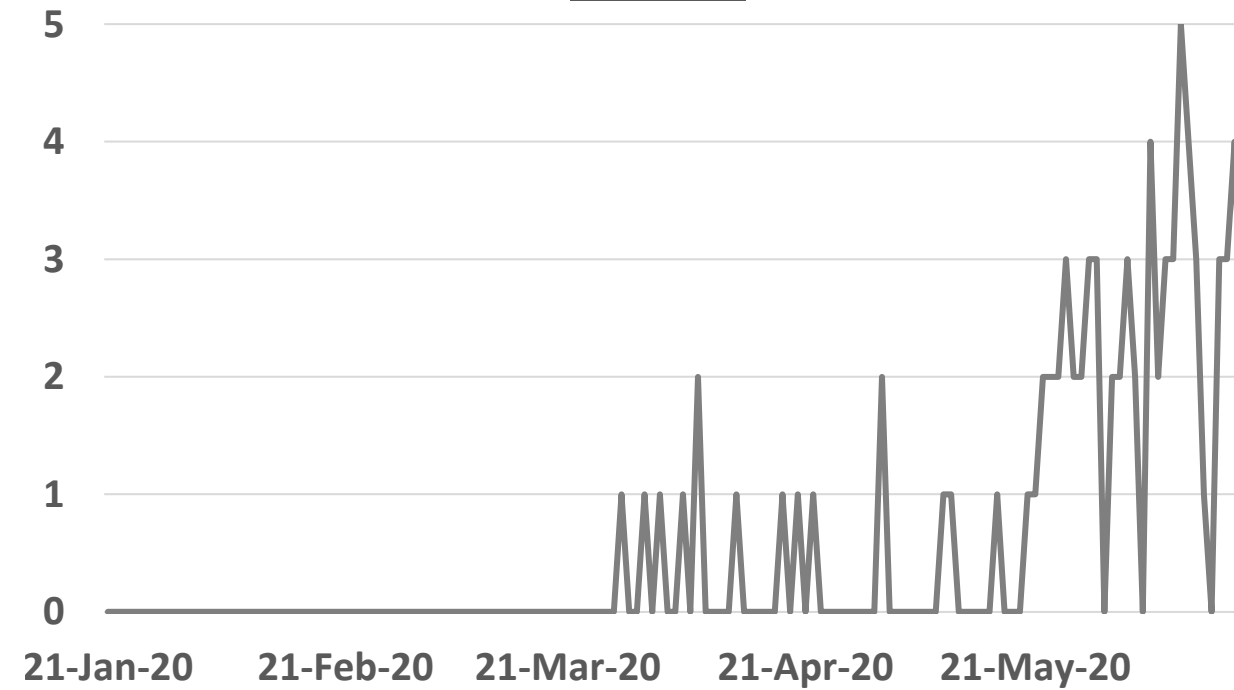
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 19, 2020)

KSA



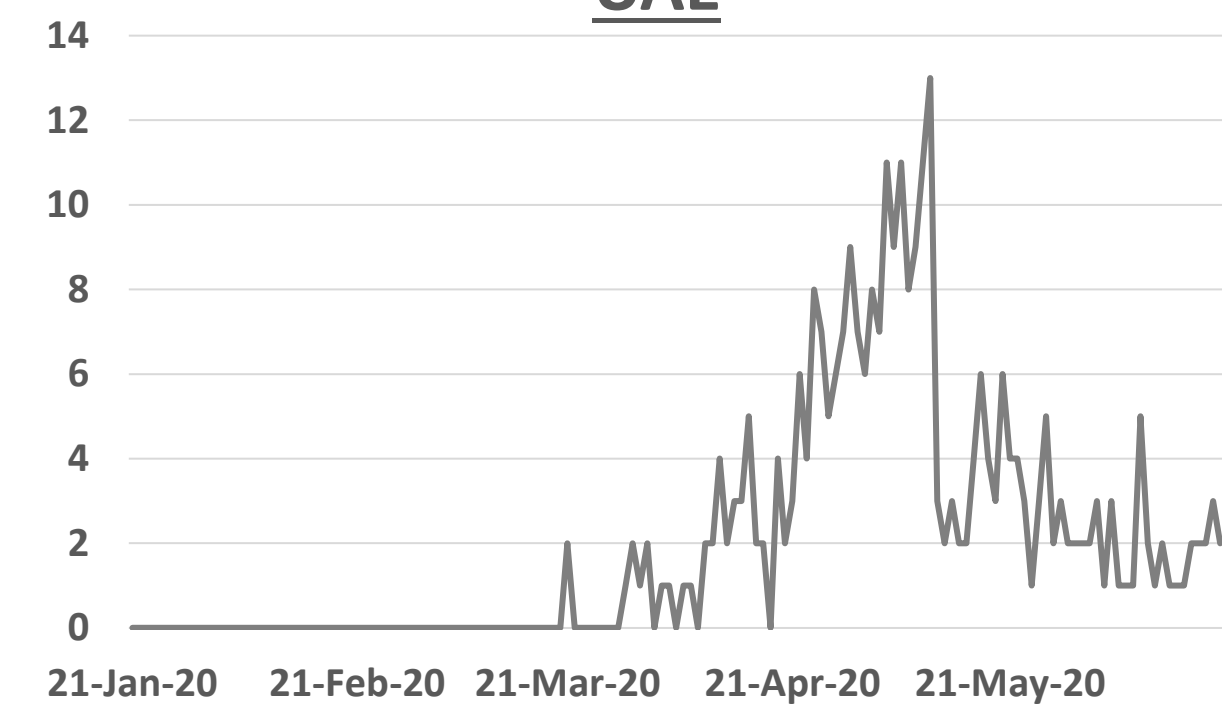
Source : KSA ministry of health

Qatar



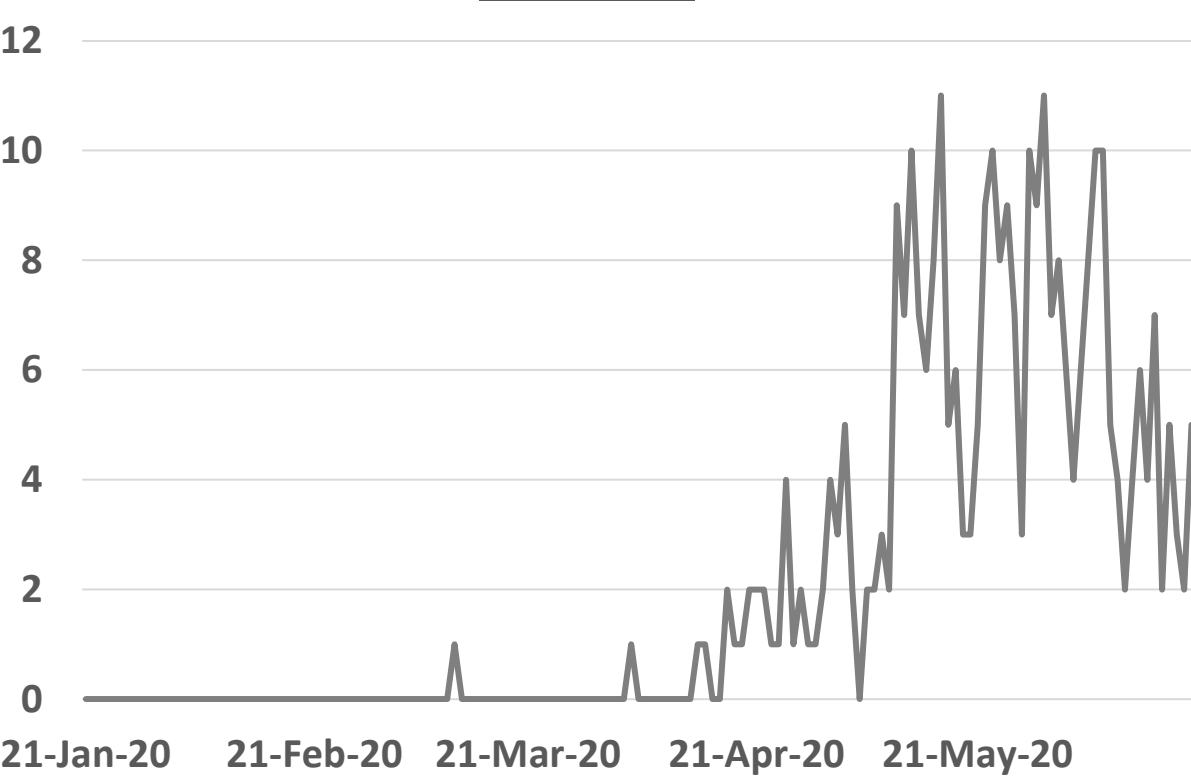
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

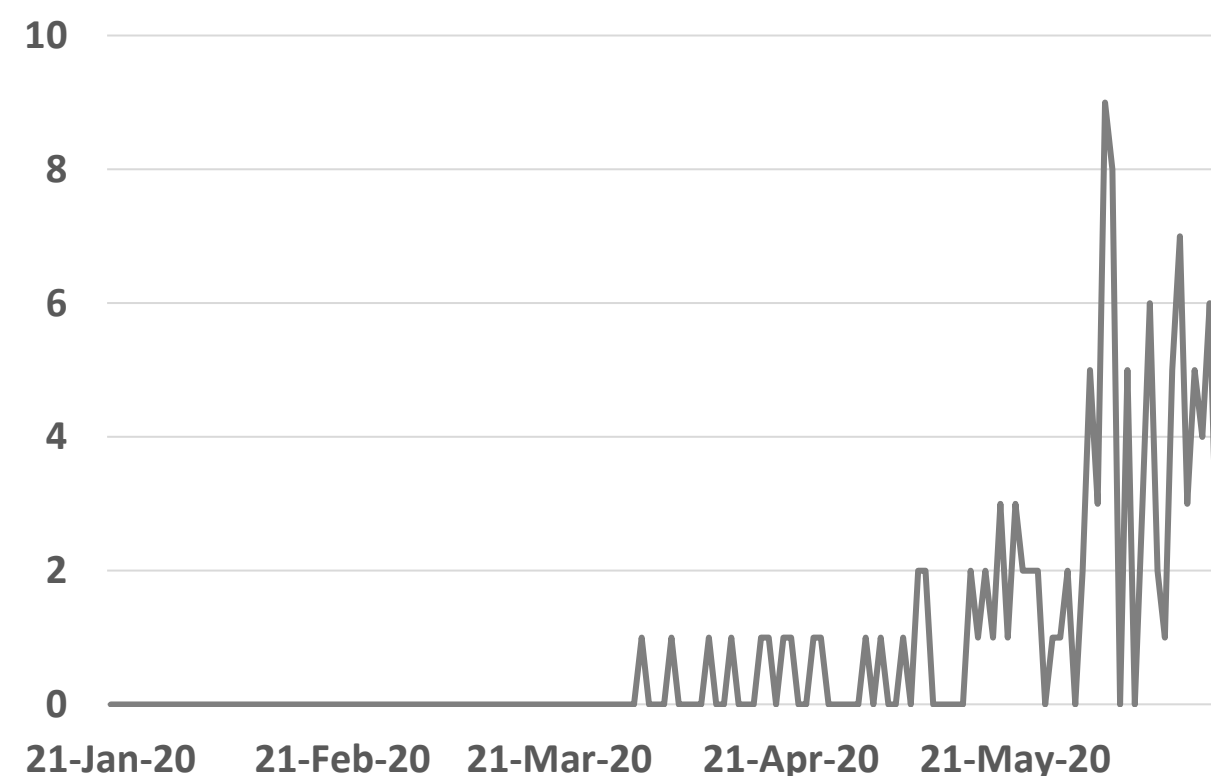
Kuwait



Source : Kuwait ministry of health

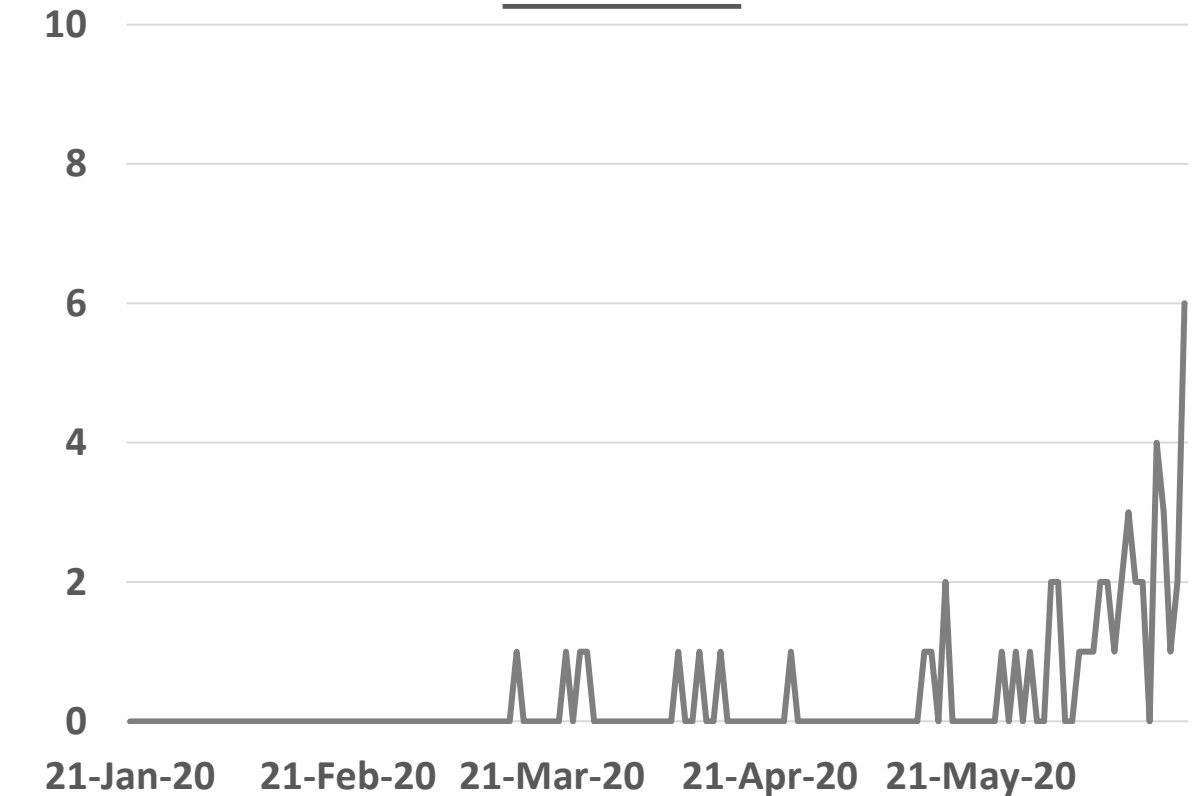
Oman

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Source :Oman ministry of health

Bahrain



Source :WHO



Transmission

Article 1: Household secondary attack rate of COVID-19 and associated determinants in Guangzhou, China: a retrospective cohort study

Published: June 17, 2020 in [the lancet](#)

Summary:

- A comprehensive contact tracing dataset was utilized (between Jan 7 and Feb 18, 2020) from the Center for Disease Control and Prevention, **China** to assess the secondary attack rate of COVID-19 among household and non-household contacts using a statistical transmission model. Demographics, baseline health conditions, clinical, and exposure history in the 14 days before symptom onset were recorded using a standardized investigation form. Two alternative definitions of household contacts was considered - a) individuals who were either family members or close relatives regardless of residential address; and b) individuals living at the same address regardless of relationship.
- In this retrospective cohort study, contact tracing identified 195 unrelated close contact groups (215 primary cases, 134 secondary or tertiary cases, and 1,964 uninfected close contacts). Anticipating a mean incubation period of 5 days, **maximum infectious period of 13 days**, and no case isolation, the secondary attack rates were 12.4% (95% CI: 9.8-15.4) among household contacts when it was defined on the basis of close relatives and 17.1% (95% CI: 13.3-21.8) when it was defined on the basis of residential address.
- Anticipating the same mean incubation period (5 days) and maximum infectious period (13 days), compared with age group ≥ 60 years, the risk of infection was **lower among <20 years** [odds ratio (OR) - 0.23; 95% CI: 0.11-0.46] **and 20-59 year** [OR - 0.64; 95% CI: 0.43-0.97]. The local reproductive number (R) based on observed contact frequencies of primary cases was 0.5 (95% CI: 0.41-0.62) when household was defined on the basis of close relatives. The projected local R, had there been no isolation of cases or quarantine of their contacts was 0.6 (95% CI: 0.49-0.74).



Article 1: Cont., Conclusion:

- SARS-CoV-2 can be transmitted within households and during incubation period. As presymptomatic and asymptomatic transmission has been observed, case isolation alone is inadequate to alleviate the pandemic. Comprehensive tracing and timely quarantine of close contacts of COVID-19 cases should be implemented to prevent onward transmission during incubation period.

	Mean incubation period of 5 days		Mean incubation period of 7 days	
	13-day infectious period	22-day infectious period	13-day infectious period	22-day infectious period
Close relatives				
Secondary attack rate, % (95% CI)				
Household	12.4% (9.8-15.4)	15.5% (11.7-20.2)	11.4% (9.0-14.2)	13.1% (9.9-17.1)
Non-household	7.9% (5.3-11.8)	10.4% (6.7-15.8)	7.5% (5.0-11.2)	8.9% (5.7-13.6)
Local R (95% CI)				
With quarantine	0.50 (0.41-0.62)	0.51 (0.39-0.66)	0.51 (0.41-0.63)	0.51 (0.39-0.67)
No quarantine	0.60 (0.49-0.74)	0.76 (0.59-1.00)	0.56 (0.45-0.69)	0.65 (0.49-0.85)
Residential address				
Secondary attack rate, % (95% CI)				
Household	17.1% (13.3-21.8)	21.2% (15.8-27.8)	16.1% (12.5-20.4)	18.3% (13.6-24.1)
Non-household	7.3% (5.4-9.9)	9.3% (6.5-13.1)	6.8% (5.0-9.2)	7.8% (5.5-11.0)
Local R (95% CI)				
With quarantine	0.50 (0.40-0.61)	0.50 (0.38-0.65)	0.50 (0.41-0.62)	0.51 (0.39-0.66)
No quarantine	0.59 (0.48-0.72)	0.74 (0.57-0.96)	0.55 (0.45-0.67)	0.63 (0.48-0.82)
Estimates were reported using two different definitions of household contact (close relatives or individuals sharing the same residential address) and for selected settings of the natural history of disease. This model was not adjusted for age group, epidemic phase, or household size. R=reproductive number.				
Table 2: Model-based estimates of secondary attack rates among household and non-household contacts, and local R with and without quarantine				



Public Health Response:

Article 2: Global governance for COVID-19 vaccines

Published: early release June 20,2020 [in the lancet](#)

Summary:

This article discusses the current vaccine delivery situation:

- There is a danger of a vaccine bidding war, with governments competing for a limited number of doses, well before a vaccine even reaches the market.
- Last month, the UK Government boosted its national vaccine program with £65.5 million towards AZD1222. (the one developed by the university of oxford)
- In return, 30 million doses will be reserved for people in the UK by September, as part of an agreement to deliver 100 million doses in total.
- The US Government too set aside US\$1.2 billion to secure 300 million doses of the same vaccine for use in the USA as part of the national program Operation Warp Speed to accelerate the development, manufacturing, and distribution of COVID-19 medical countermeasures.
- In June, France, Germany, Italy, and the Netherlands formed the Inclusive Vaccine Alliance to persuade pharmaceutical companies to make COVID-19 vaccines accessible and affordable to EU member states.
- The Serum Institute of India will also produce up to 1 billion doses for low-income and middle-income countries.
- The questions needed to be answer are :
 - Have the funders agreed to equitable access?
 - How will the vaccines be priced?
 - Will governments commit to sharing vaccines according to fair allocation
 - rules being developed by WHO?
 - Can technology be transferred royalty-free to multiple manufacturers?
- **In conclusion:** The nationalist and competitive approaches taken by a few high-income countries to get hold of a small supply of vaccines could result in excessive casualties in other parts of the world. Global solidarity is needed instead, and resources must be pooled and shared.



Treatment

Article 3: Association of Angiotensin-Converting Enzyme Inhibitor or Angiotensin Receptor Blocker Use With COVID-19 Diagnosis and Mortality

Published: June 19, 2020 in [the JAMA](#)

Summary:

A retrospective cohort study using data from Danish administrative registries was conducted to examine the whether use of ACEI/ARBs in COVID-19 patient is associated with **worse outcomes in patients with COVID-19**. Study period from **(February 22 to May 4, 20)**.

Exposures to ACEI/ARB use was defined as prescription fillings 6 months prior to the index date.

The primary outcome was death, and a secondary outcome was a composite outcome of death or severe COVID-19.

Results

- A 4480 patients with COVID-19 were included (median age, 54.7 years). There were 895 users (20.0%) of ACEI/ARBs and 3585 nonusers (80.0%).
- In the ACEI/ARB group, **18.1% died within 30 days vs 7.3% in the nonuser group**, but this association was **not significant after adjustment of risk factor**.
- **Death or severe COVID-19 occurred in 31.9% of ACEI/ARB users vs 14.2% of nonusers by 30 days; ACEI/ARB use compared with other antihypertensive drugs was not significantly associated with higher incidence of COVID-19.**

Conclusions

Prior use of ACEI/ARBs was **not significantly associated** with COVID-19 diagnosis among patients with **hypertension or with mortality or severe disease among patients diagnosed as having COVID-19**. These findings **do not support discontinuation of ACEI/ARB medications that are clinically indicated in the context of the COVID-19 pandemic**.