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Scientific Research Monitoring on COVID-19

22 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:** an article that describes how south Korea have reshaped hospital to accommodate the outflow of cases by developing different strategies.
- **Clinical Feature and transmission:** an article that asses the SARS-CoV-2 transmission among pregnant women in New York City was associated with neighborhood- and building-level markers of large household membership, household crowding, and low socioeconomic status. These data may aid policy makers in the design of interventions to reduce the spread of SARS-CoV-2



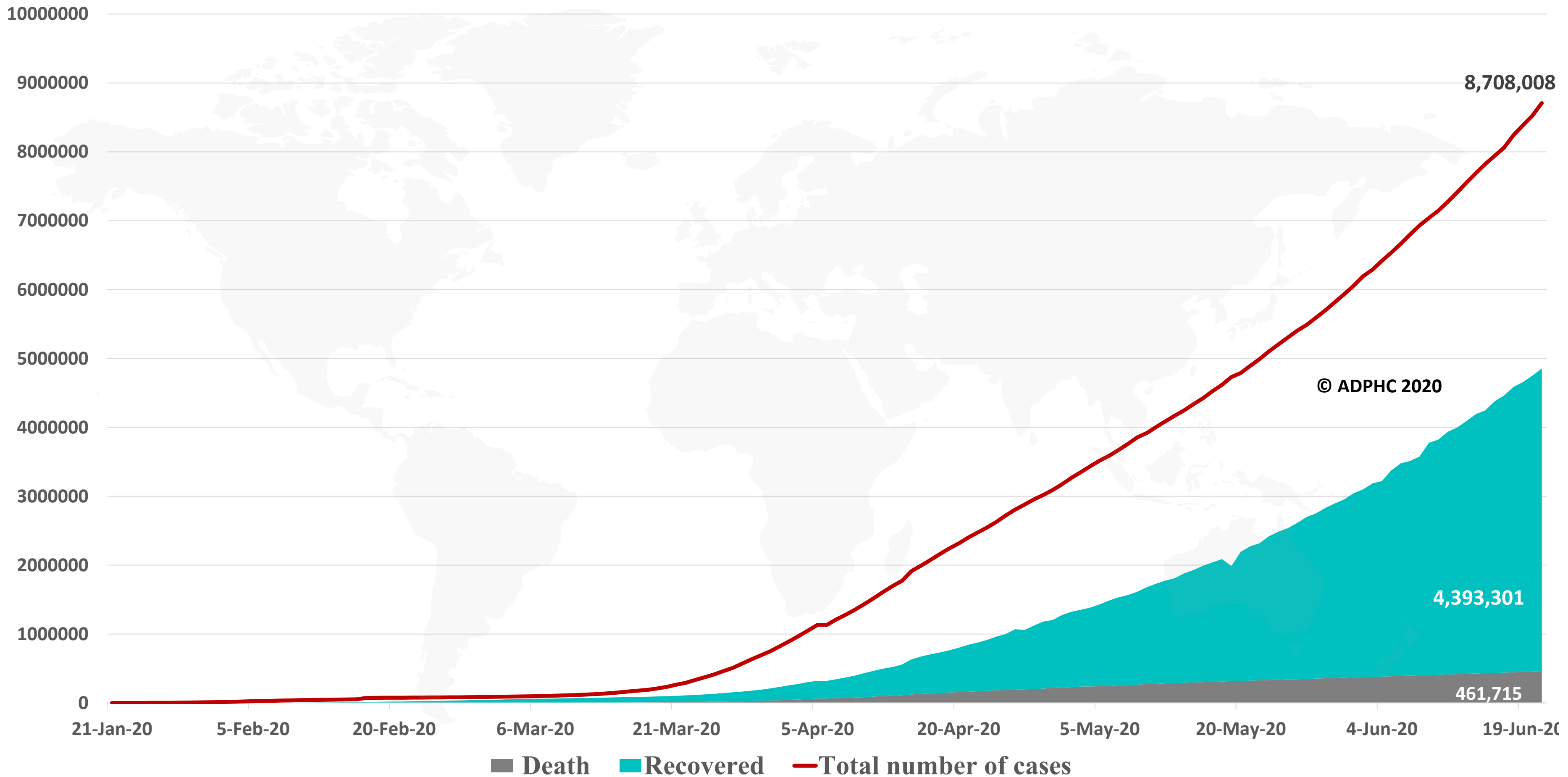
WHO Daily Report 21 June 2020

- The European Region **accounts for 31%** of COVID-19 cases **and 43% of COVID-19 deaths** globally. The WHO Regional Office for Europe is Preparing for the autumn as a priority now.
- A **survey conducted by the WHO Regional Office** for the Americas highlight that services for the prevention and **treatment of non-communicable diseases (NCDs) have been critically affected since the onset of the COVID-19 pandemic in the Region.**
- **Oman** has launched some of the **most powerful technological solutions deployed to date in the Middle East to track the movement** and spread of COVID-19 and **ensure patient compliance with isolation** measures, in an effort to contain the disease in the country:
 - mobile application using artificial intelligence, with enhanced features that include up-to-date COVID-19 statistics, guidelines and best practices to prevent the spread of infection.
 - The application also enables access to medical hotlines and support staff so that patients can discuss their symptoms and be directed to facilities where they can access care.
 - The application is available in Arabic, English, Hindi, Bengali and Urdu, in an effort to cater to both citizens and residents in Oman. It has been downloaded tens of thousands of times.

Epidemiology



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

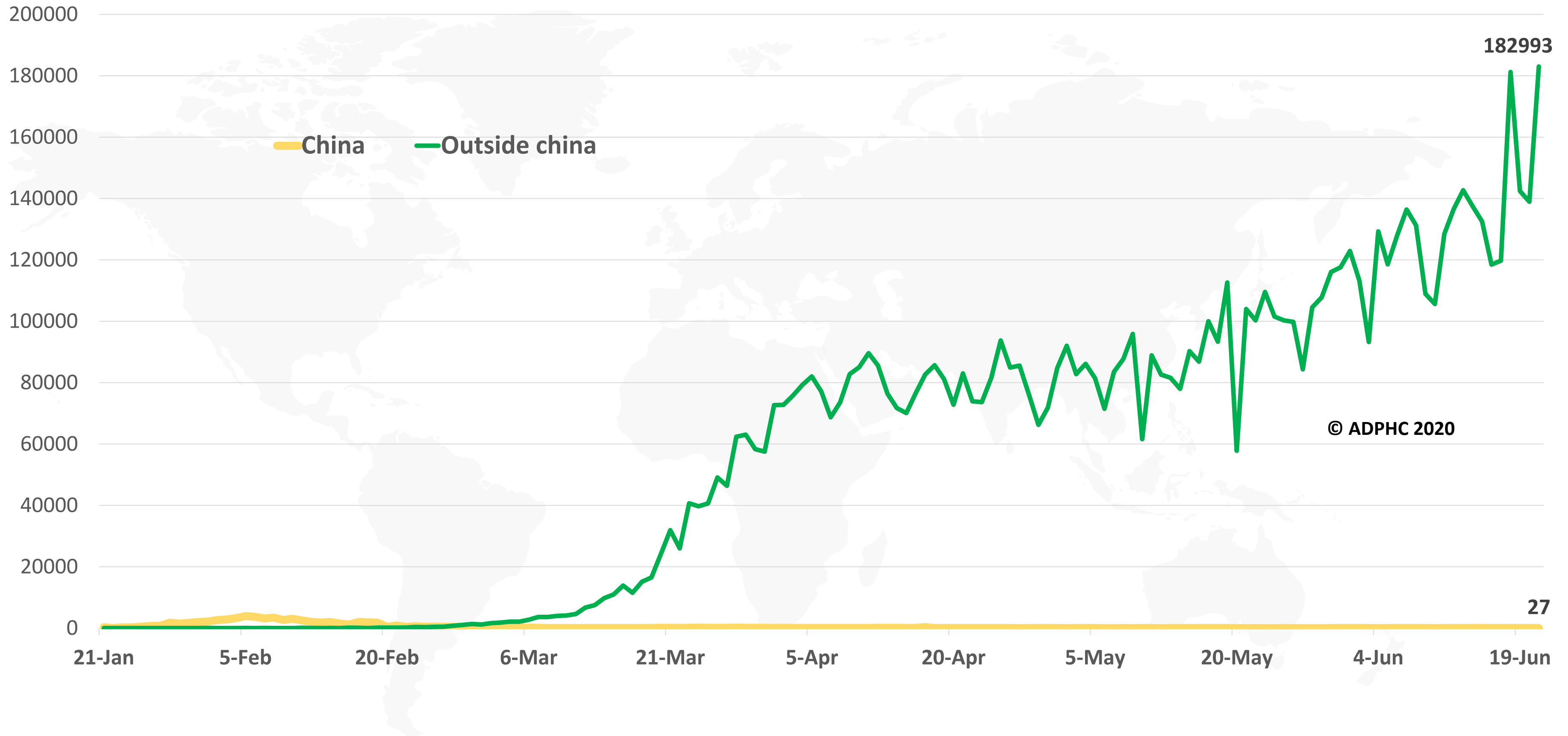


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



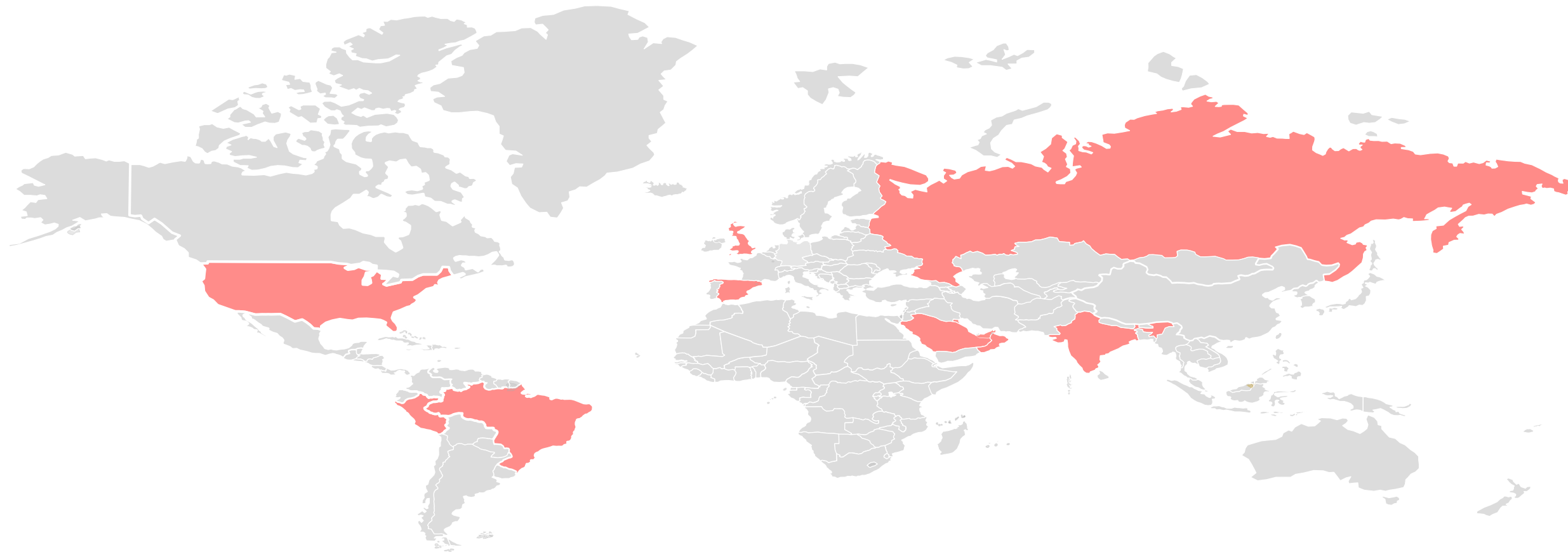
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

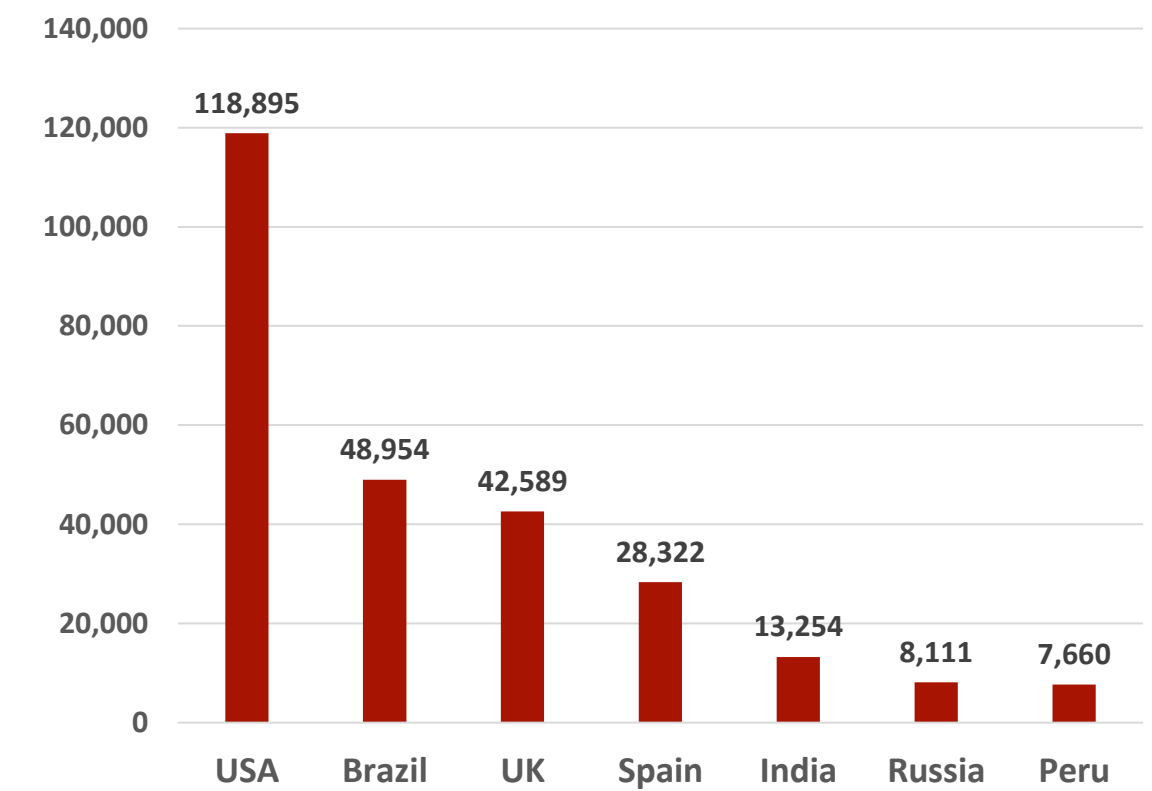
Epidemiology



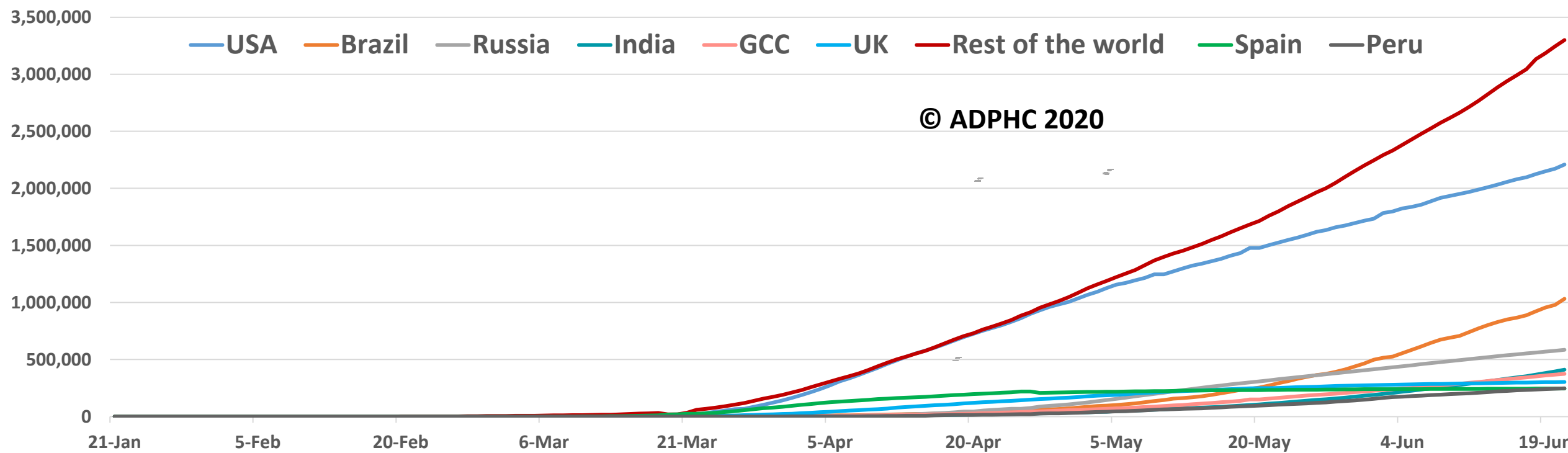
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to Jun 21, 2020).



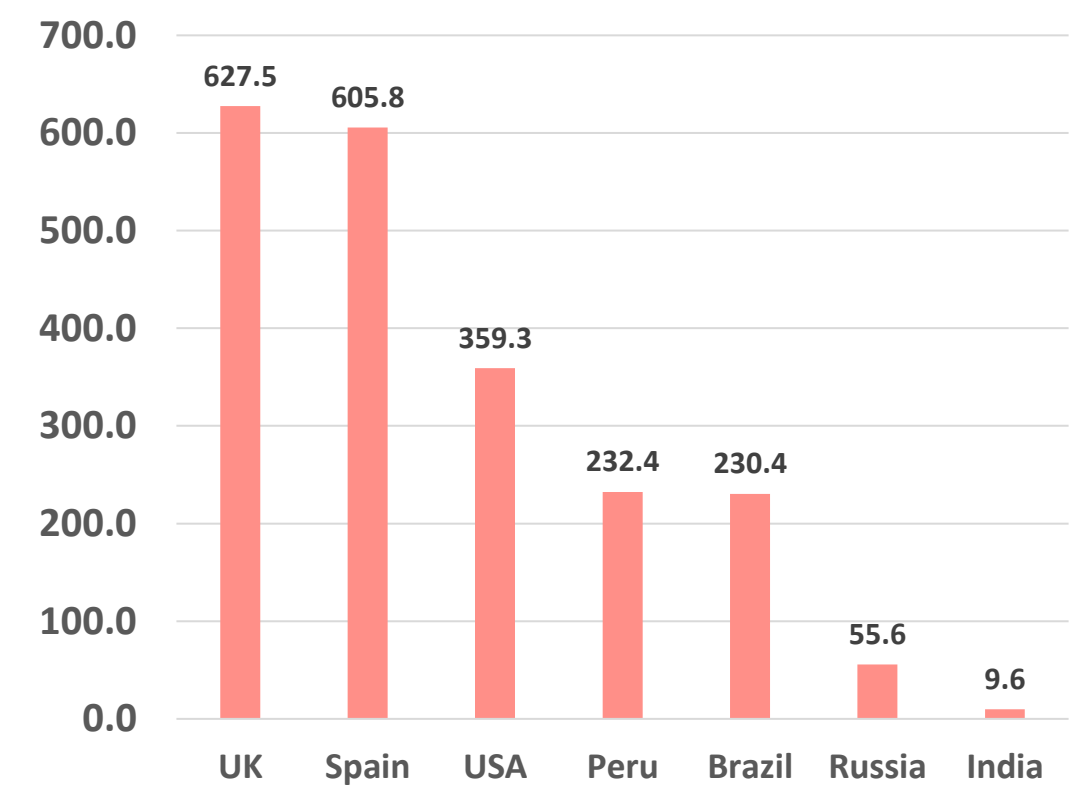
TOTAL DEATHS



TOTAL INFECTED CASES



DEATHS PER MILLION

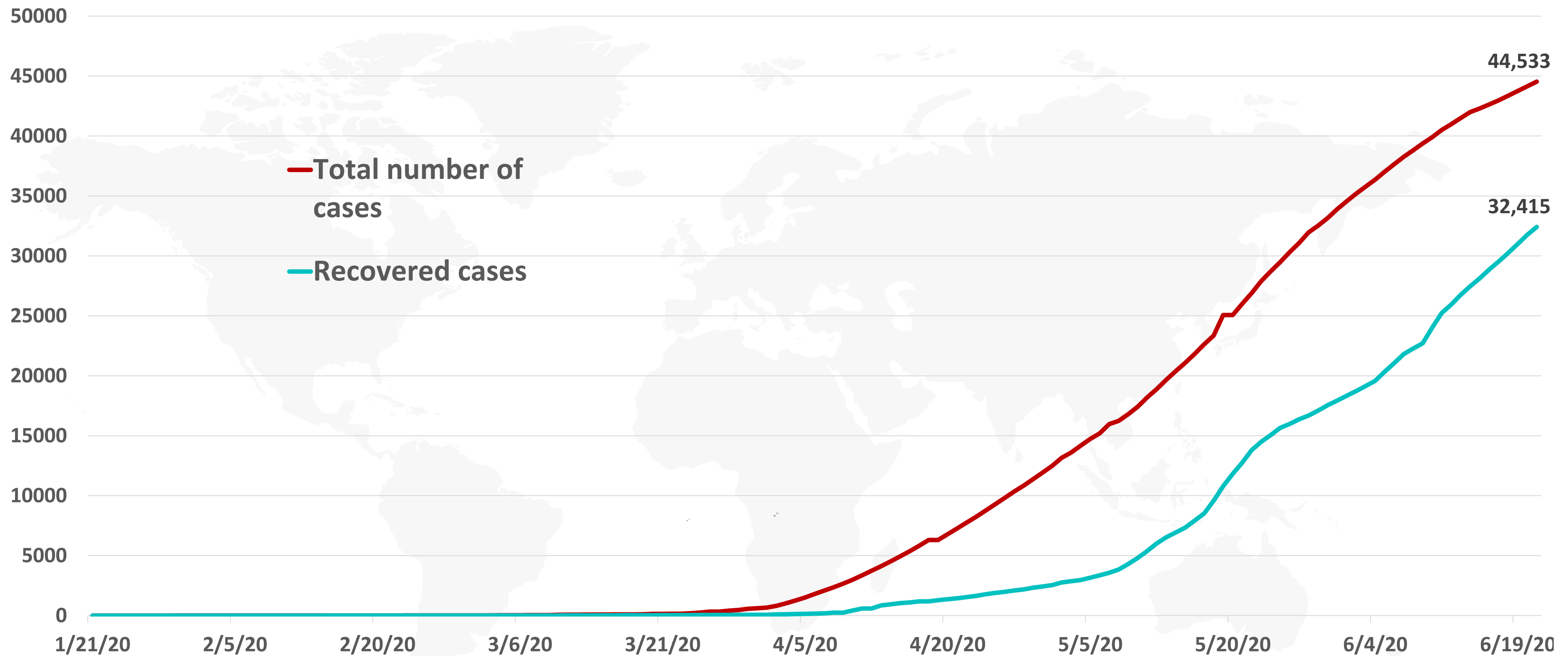


Line graph published by Abu Dhabi Public Health Center 2020.

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



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



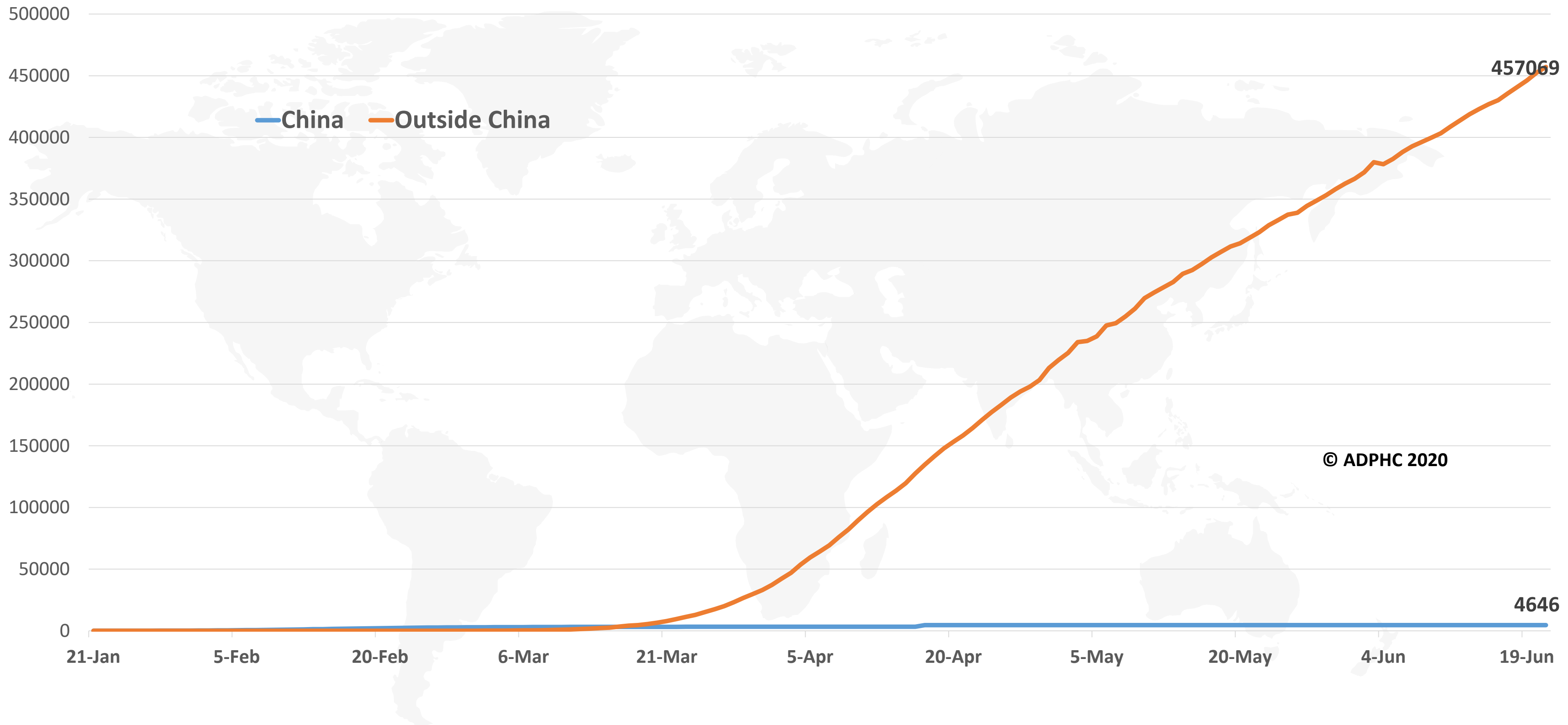
Line graph published by Abu Dhabi Public Health Center 2020.

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 21, 2020).



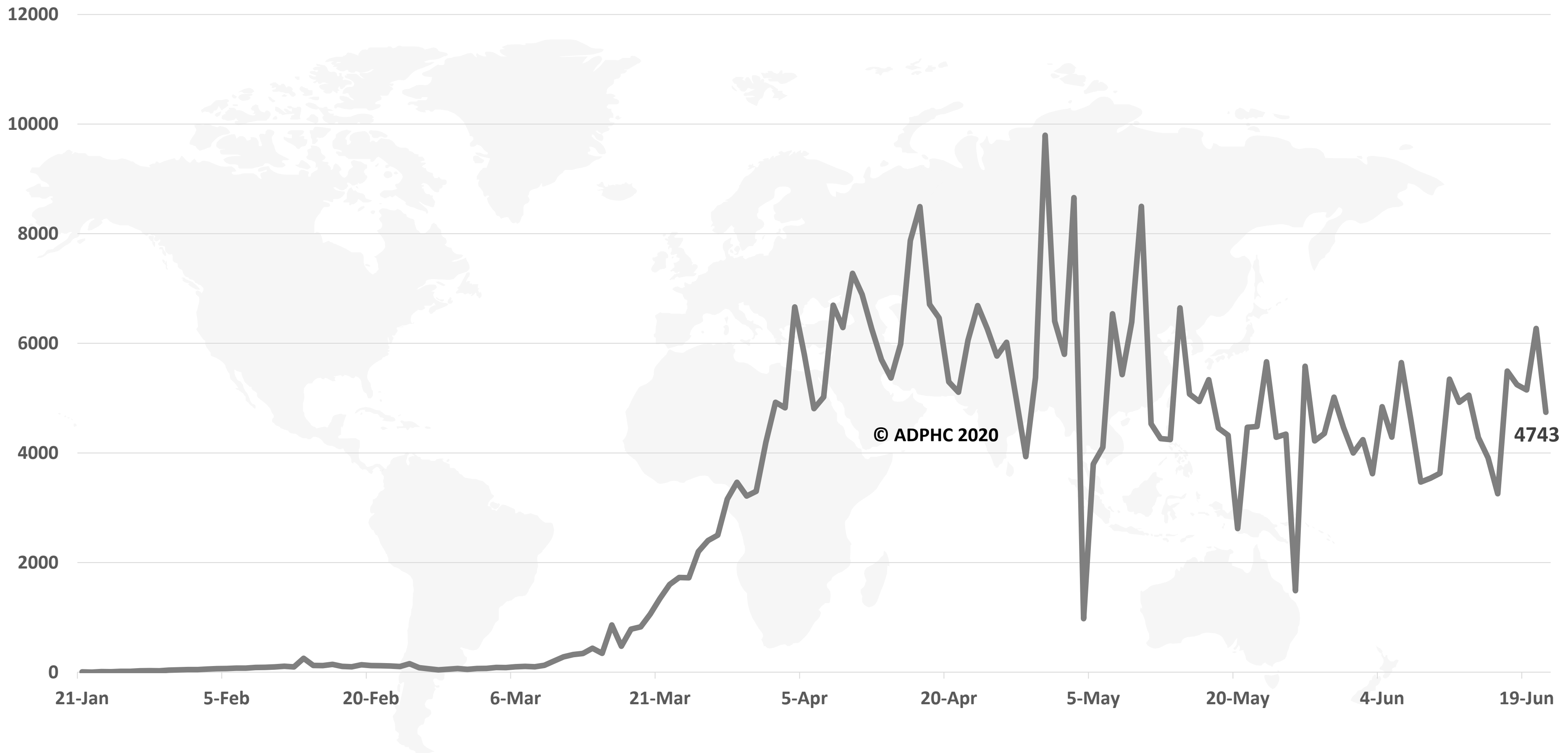
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



Figure 6: Global daily new deaths due to COVID-19 (January 22 to Jun 21, 2020).



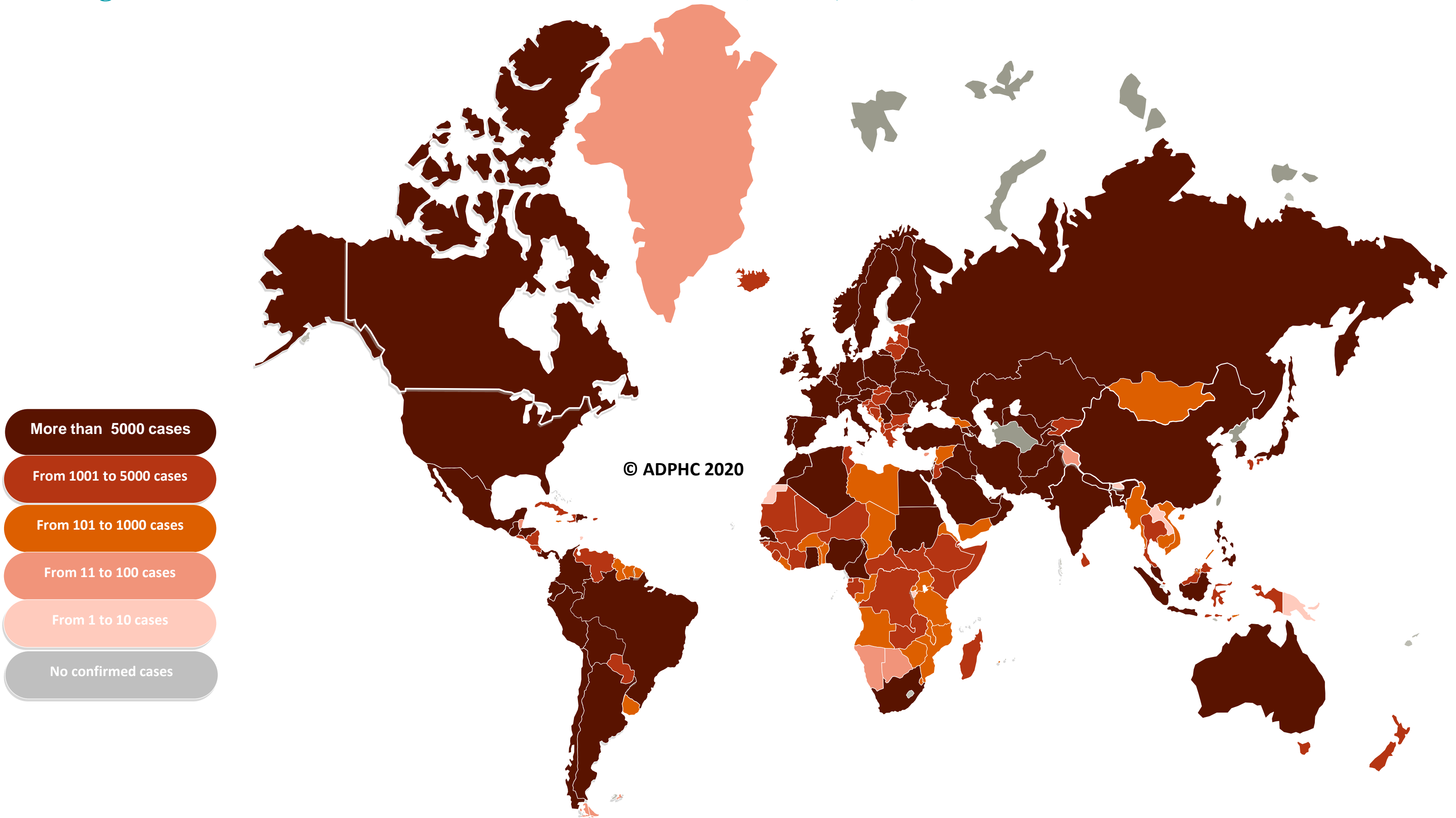
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

Epidemiology



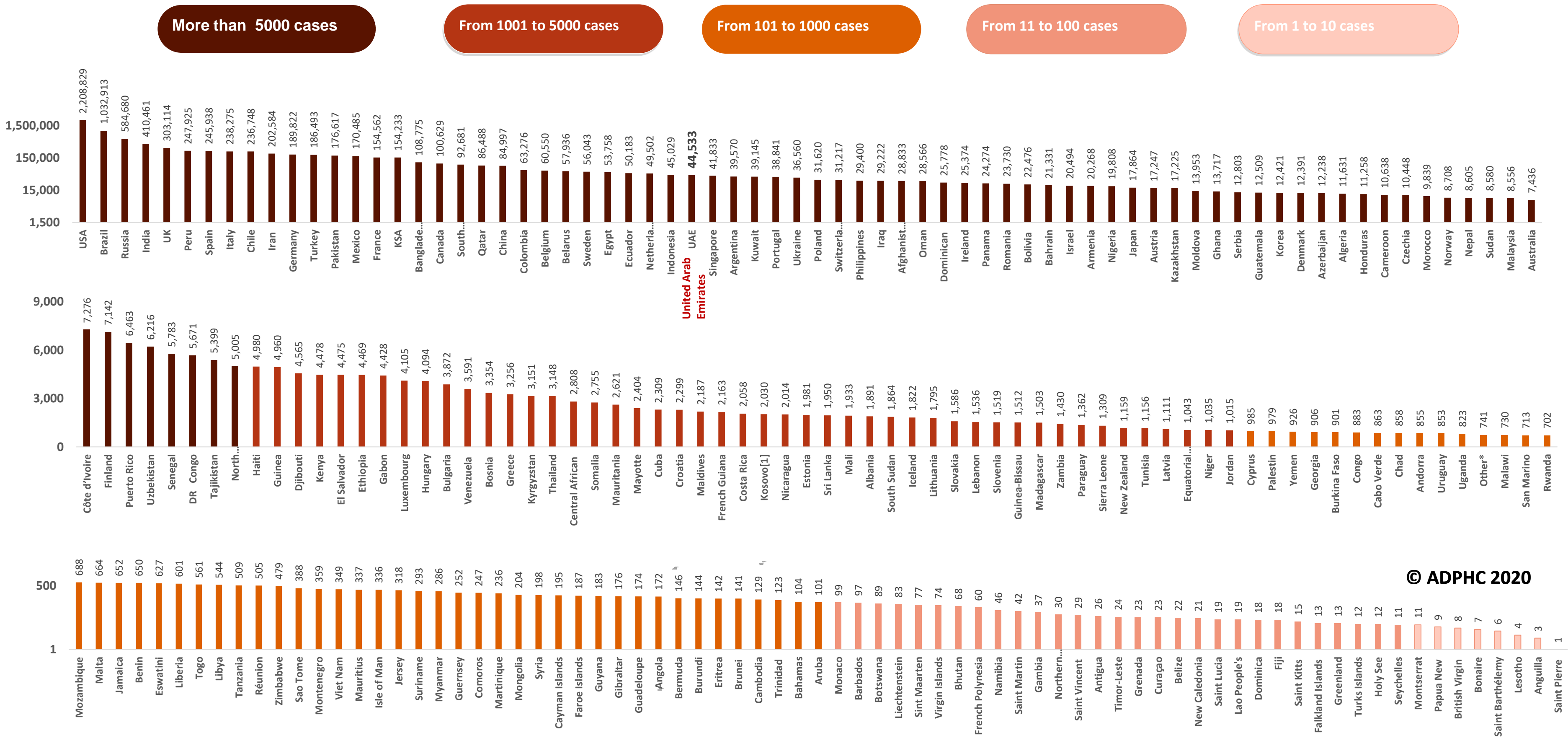
Figure 7a : Global distribution of COVID-19 cases (Jun 21, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases Jun 21, 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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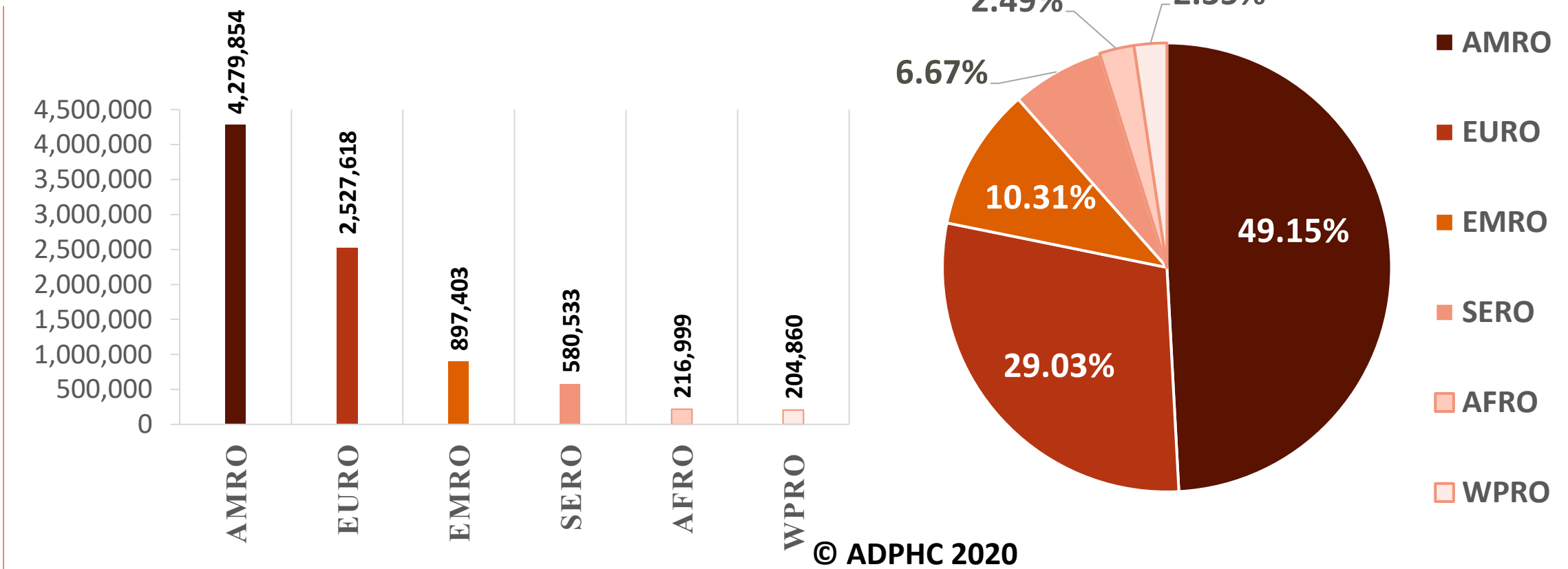
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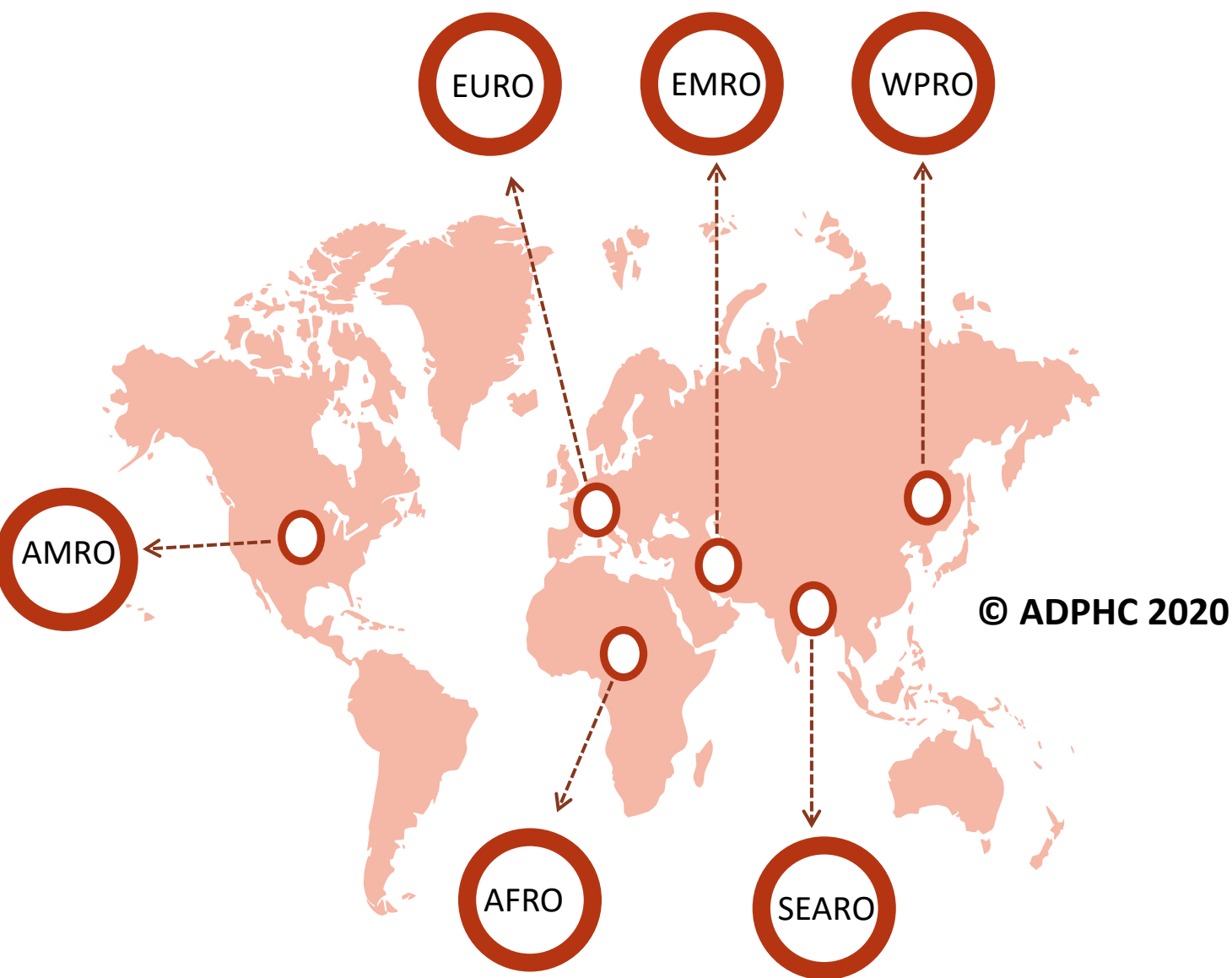
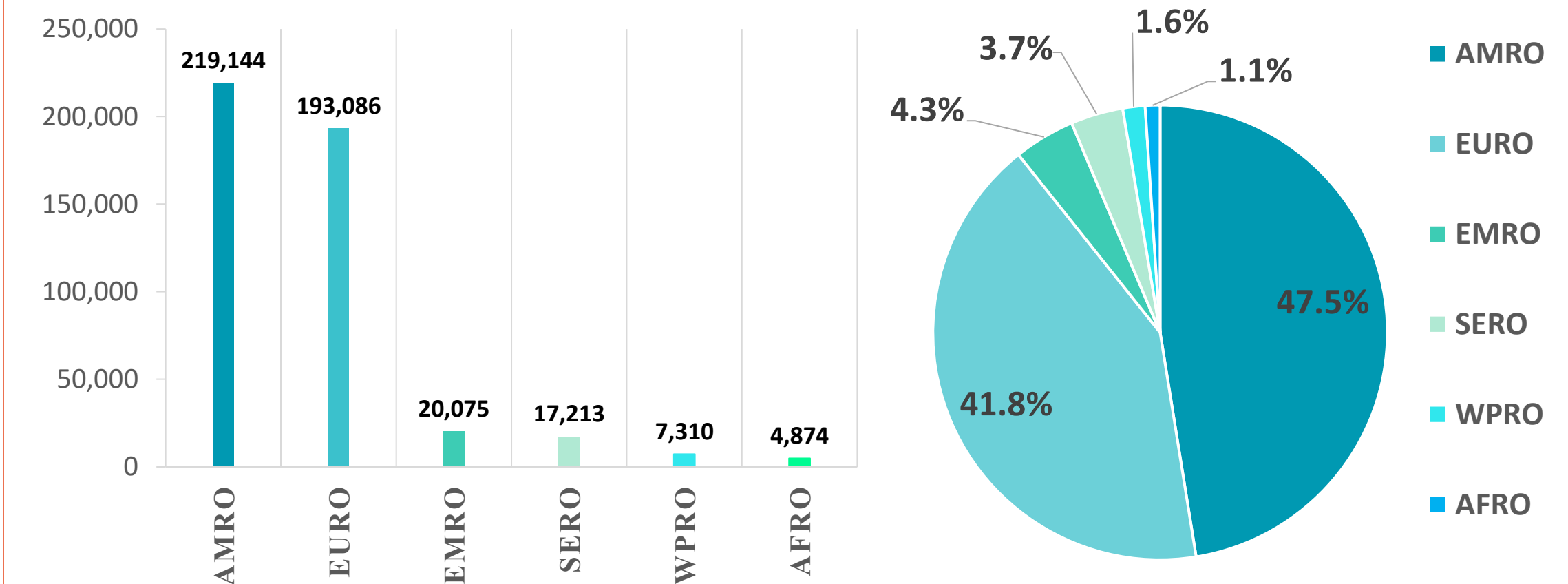


Figure 8: illustrate the Global distribution of COVID19 cases per region (Jun 21, 2020)

INFECTED



DEATH



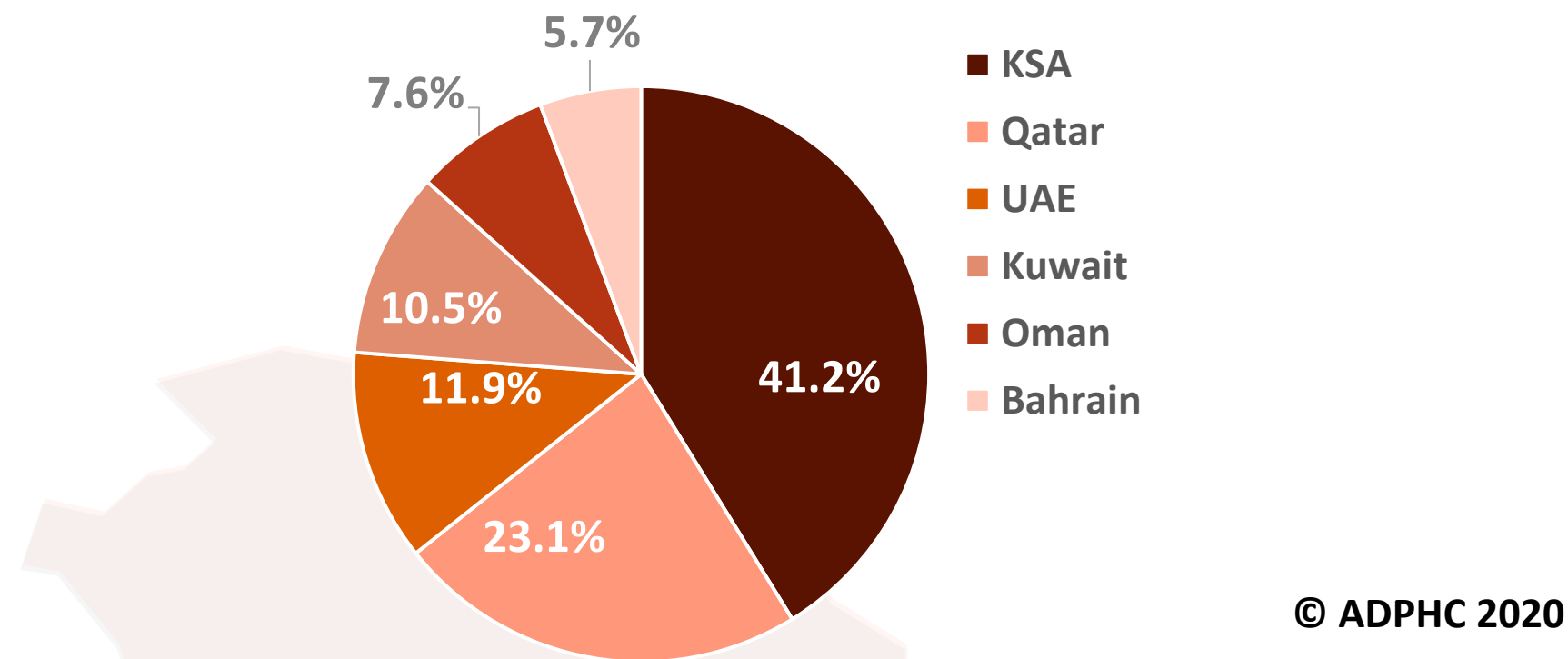
Map chart published by Abu Dhabi Public Health Center 2020.

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

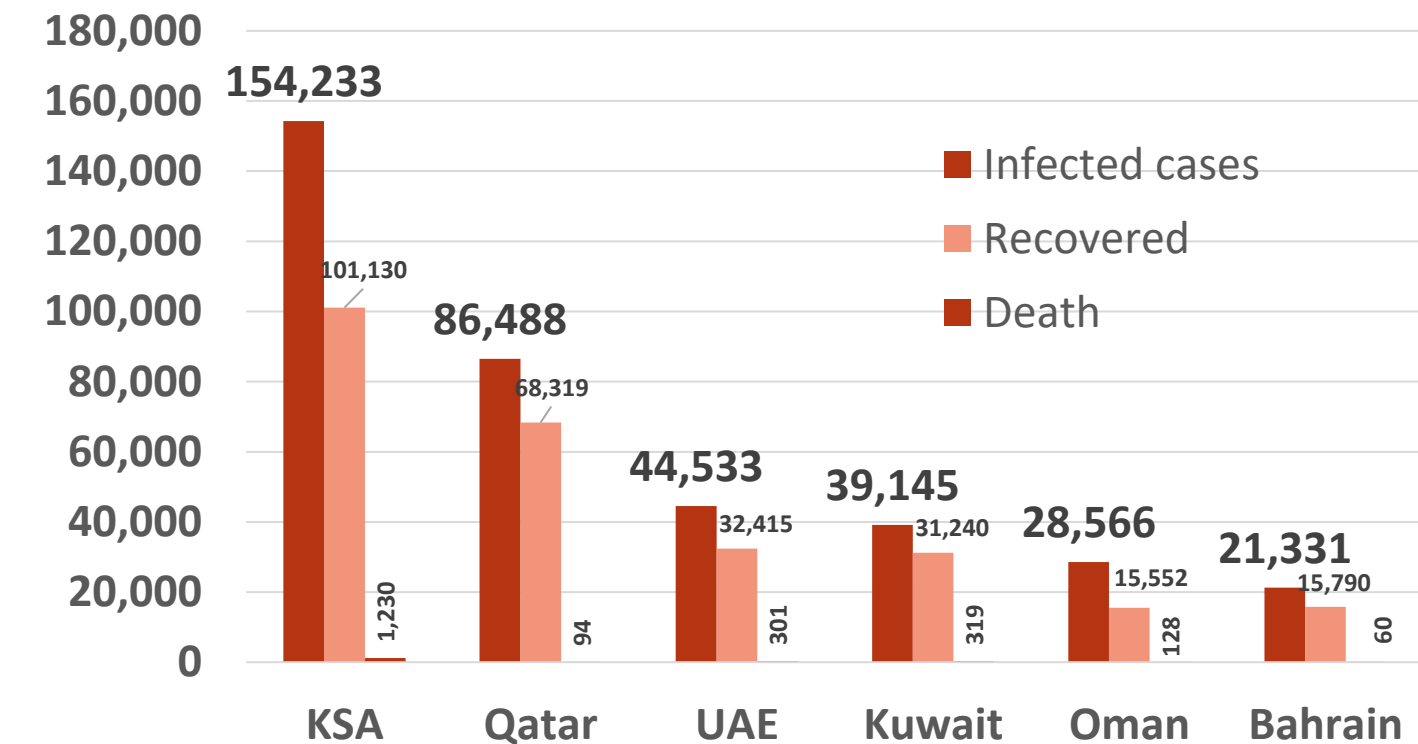


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (Jun 21, 2020)

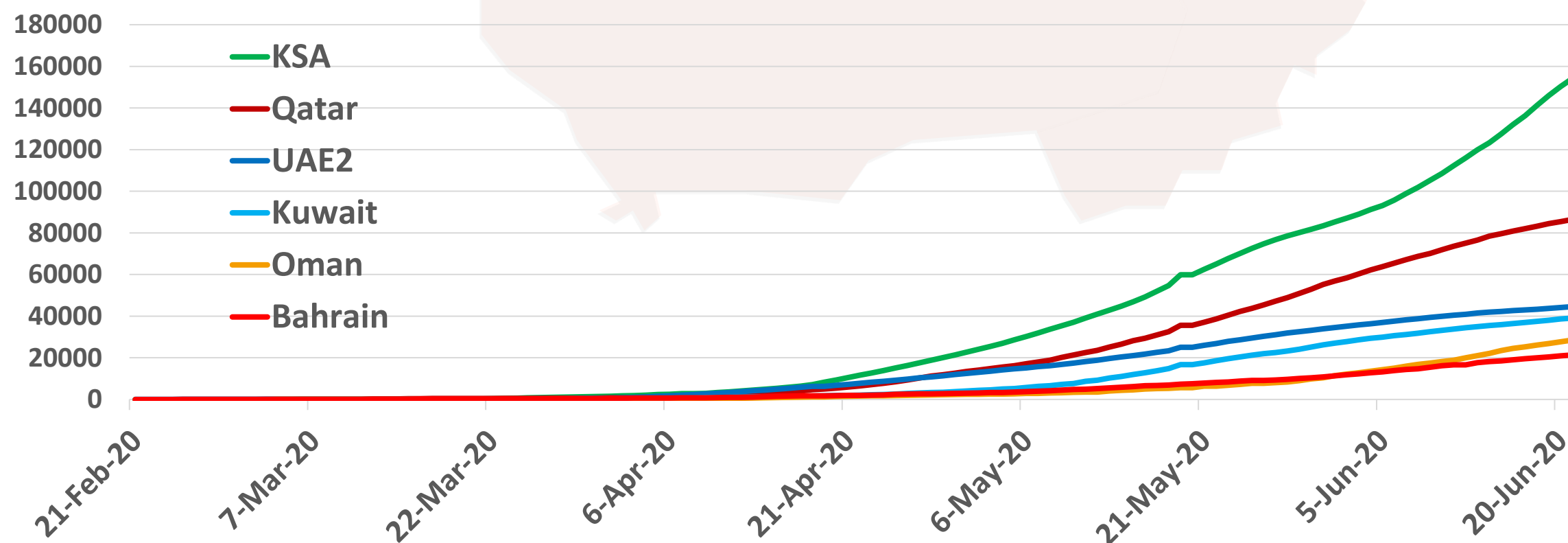
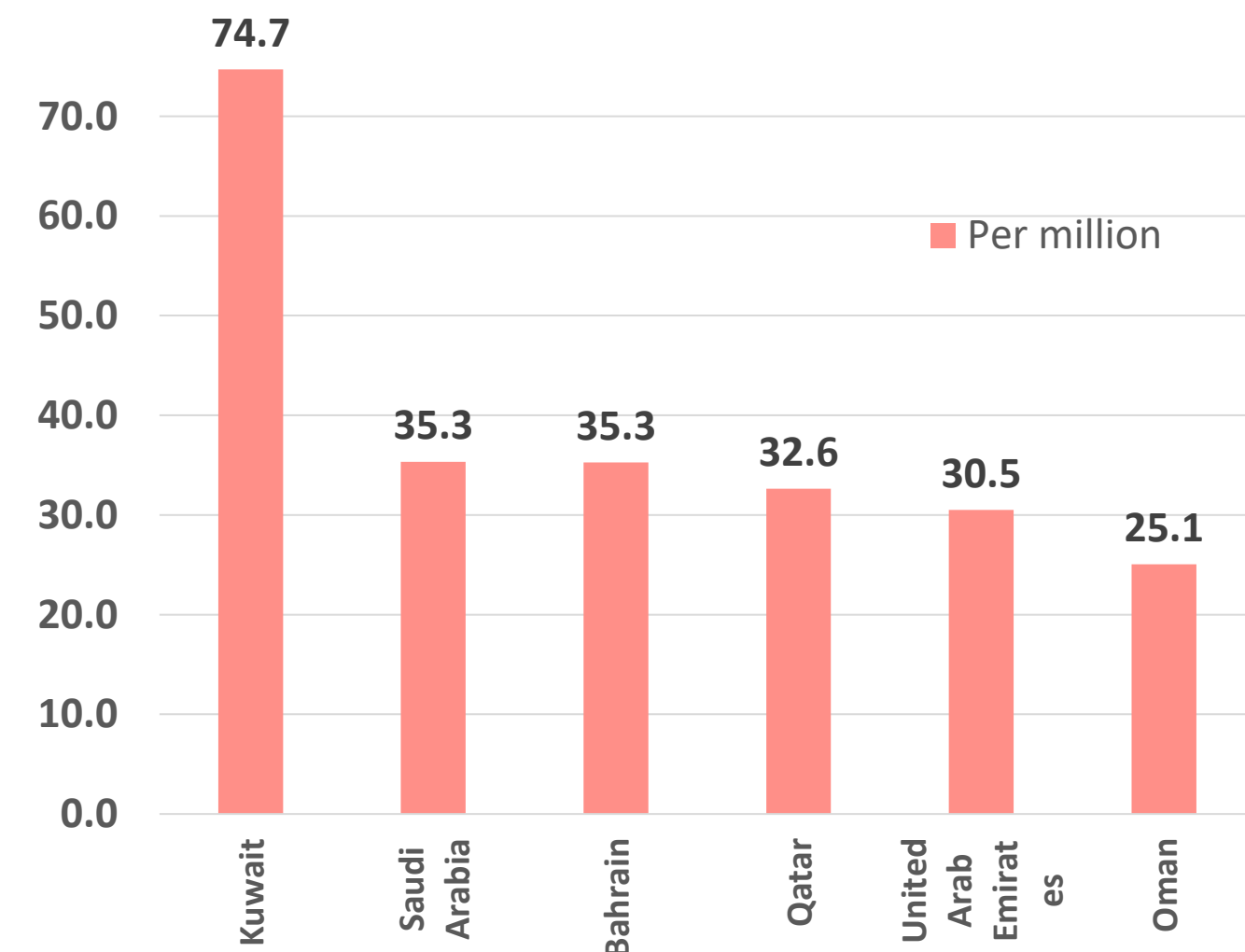
TOTAL NUMBER OF INFECTED CASES



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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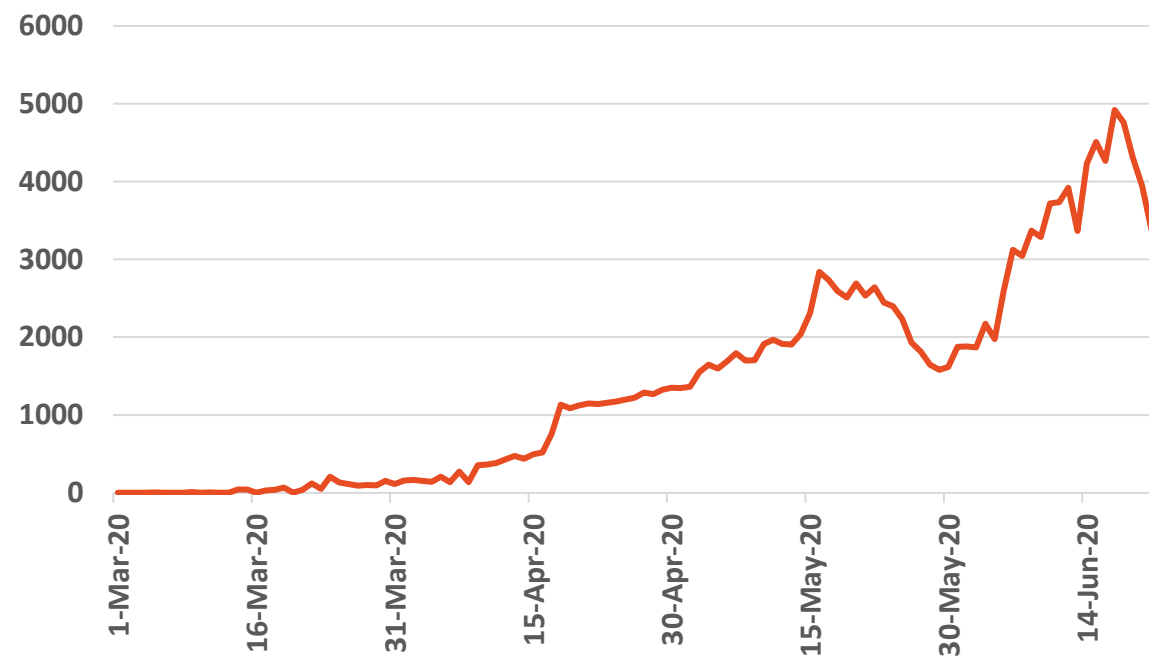
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Epidemiology



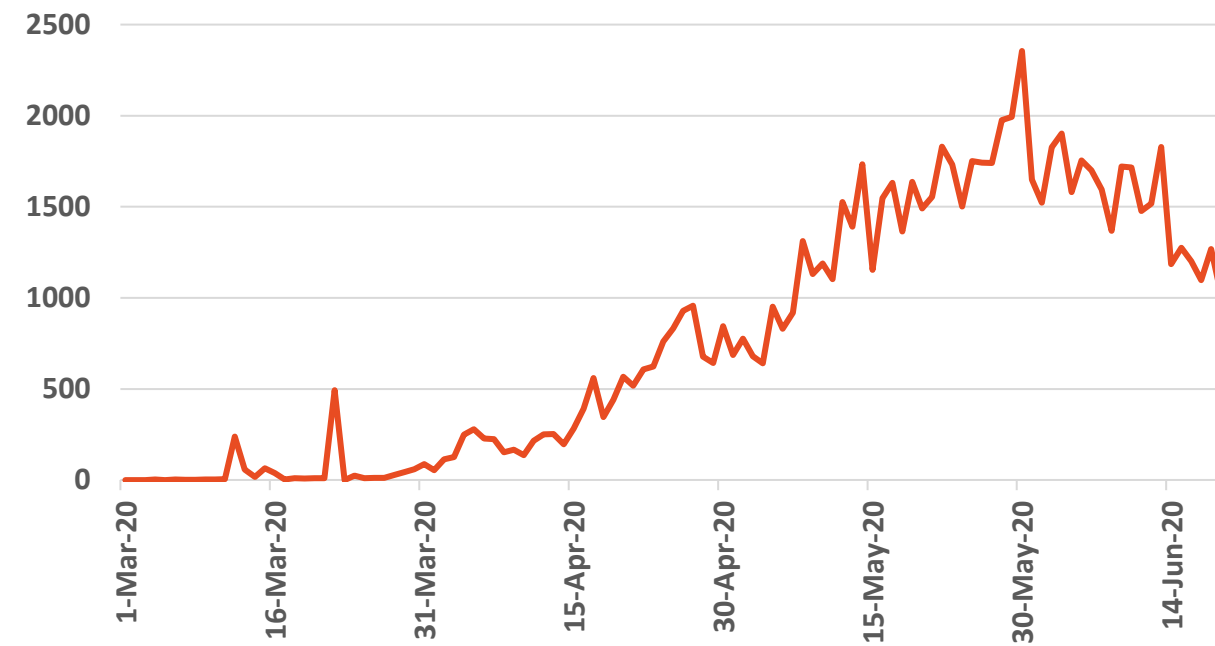
Figure 10: Comparative analysis of the distribution of COVID19 new cases in GCC countries (June 21, 2020)

KSA



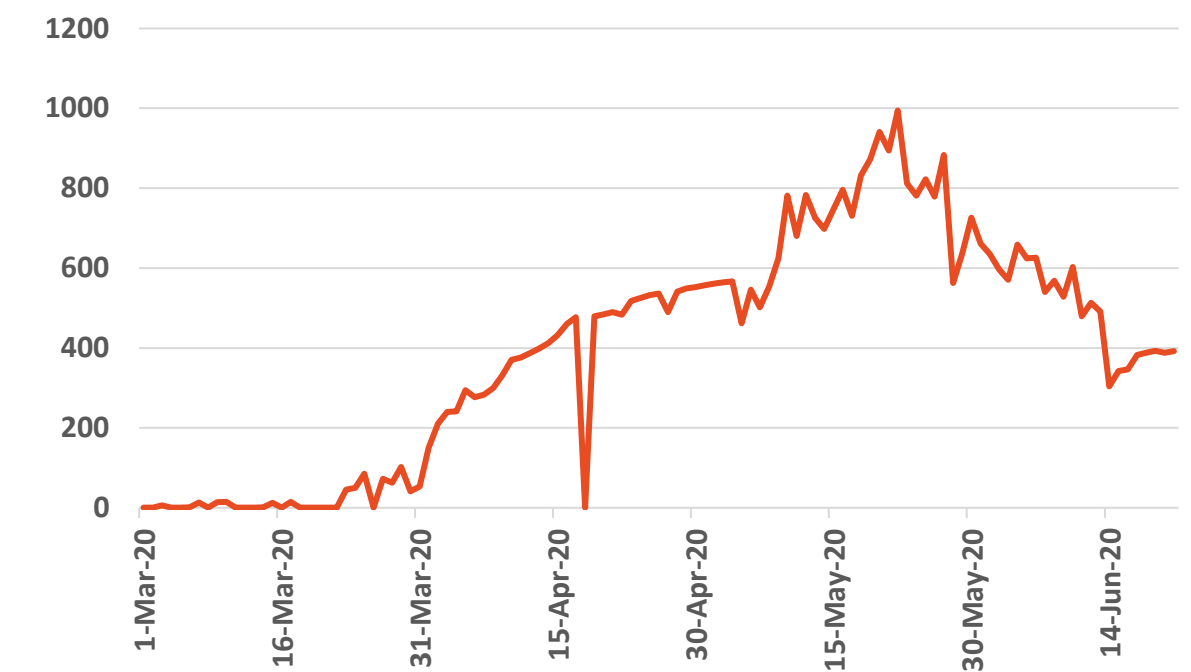
Source : KSA ministry of health

Qatar



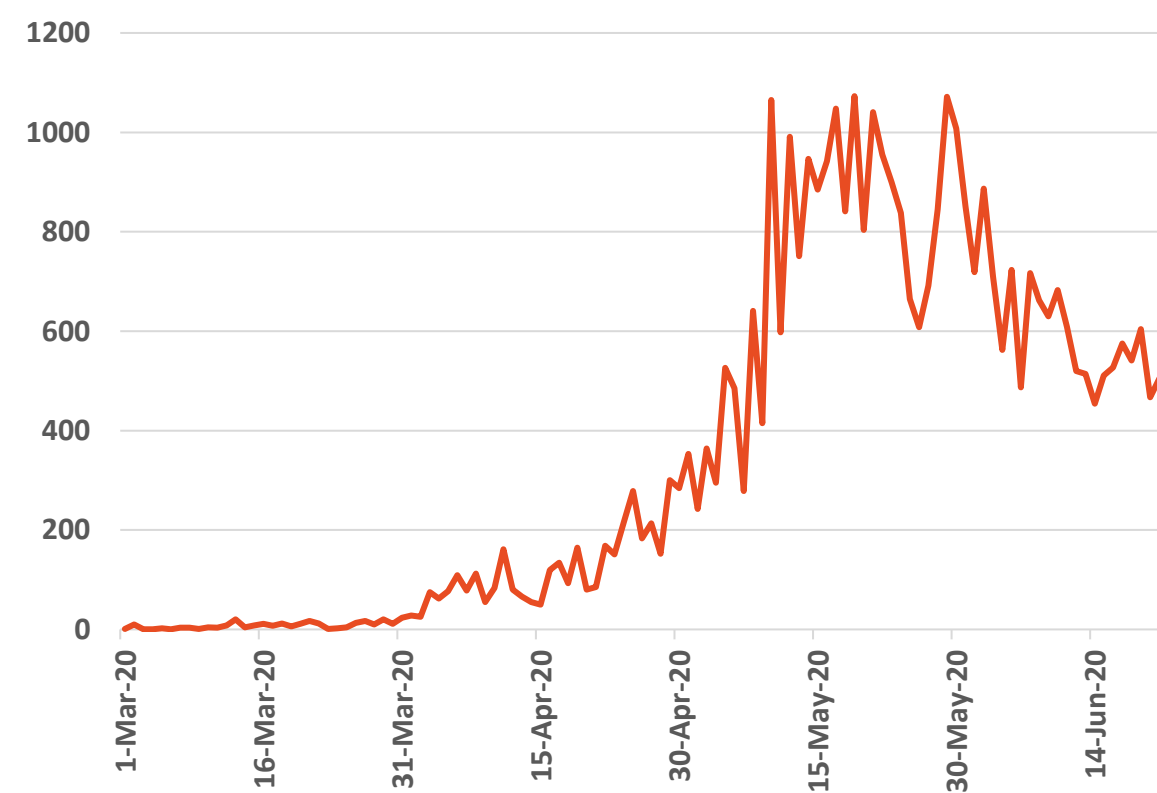
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

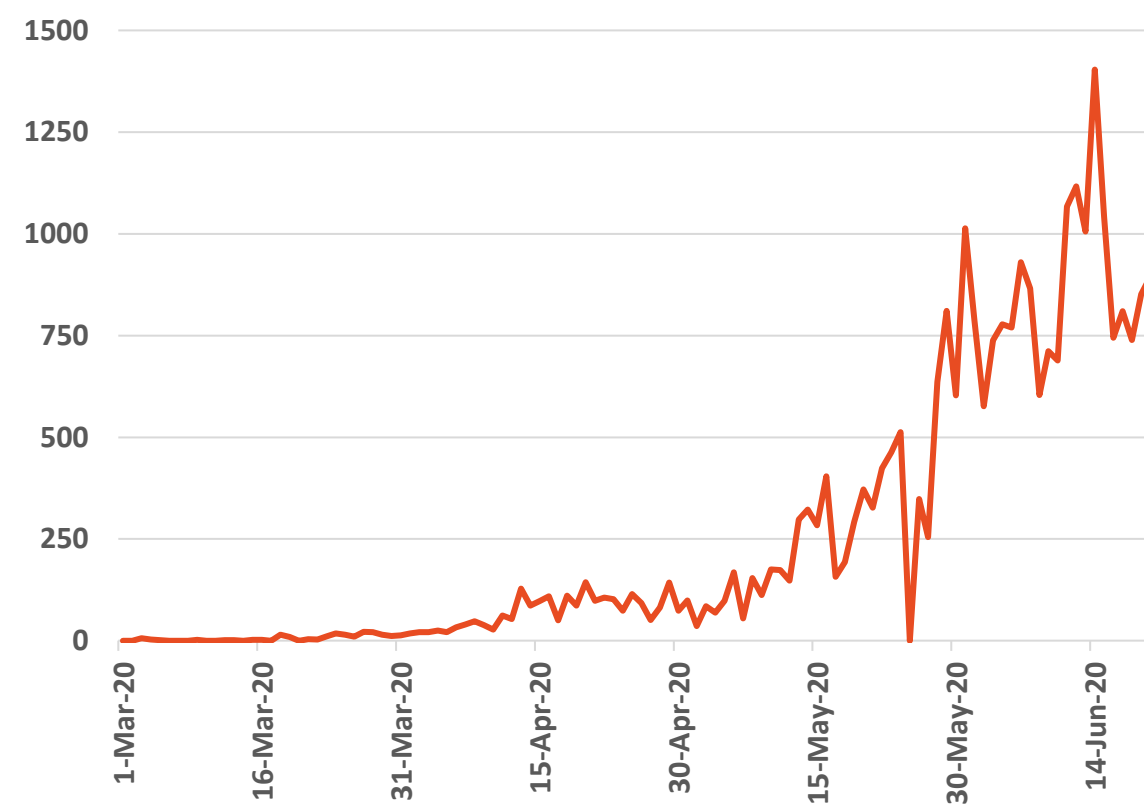
Kuwait



Source : Kuwait ministry of health

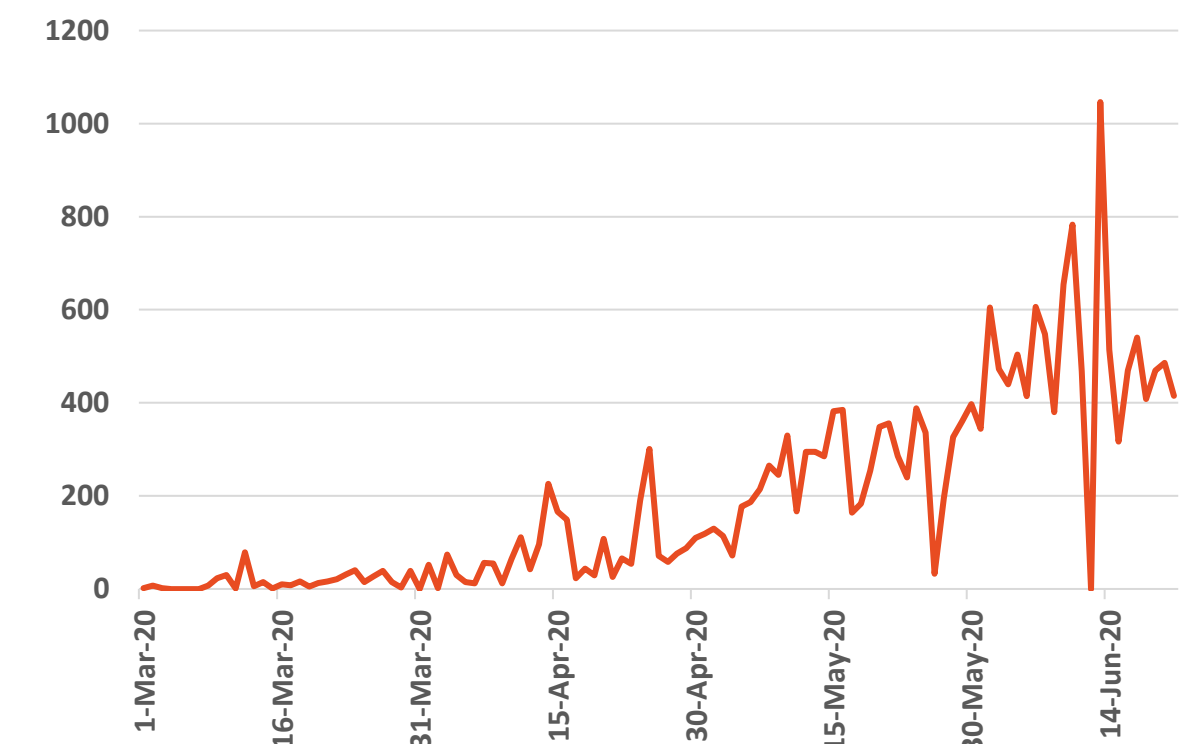
Oman

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Source : Oman ministry of health

Bahrain



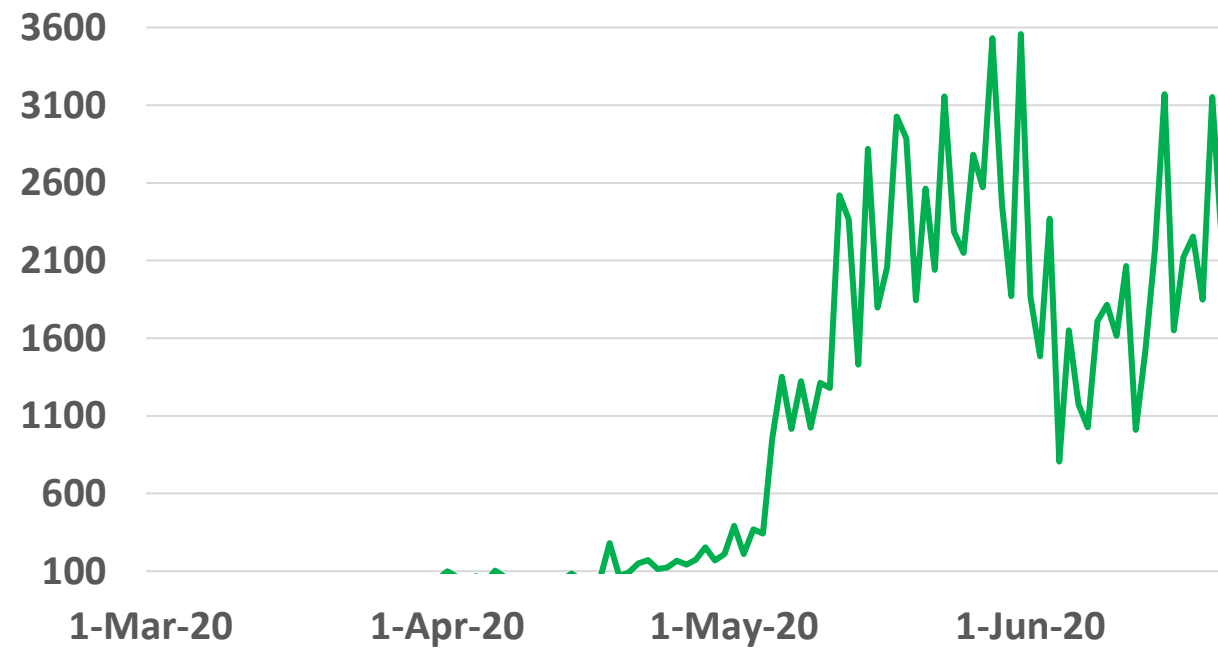
Source :WHO

Epidemiology



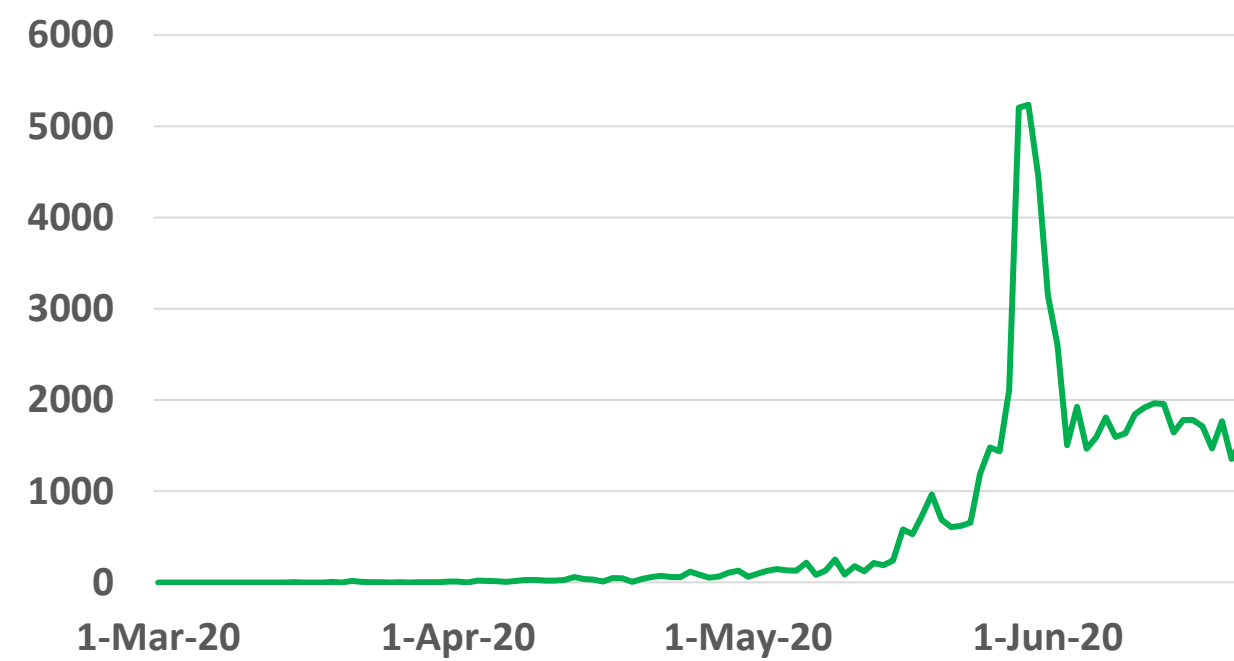
Figure 11 : Comparative analysis of the distribution of COVID19 newly recovered cases in GCC countries (June 21, 2020)

KSA



Source : KSA ministry of health

Qatar



Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

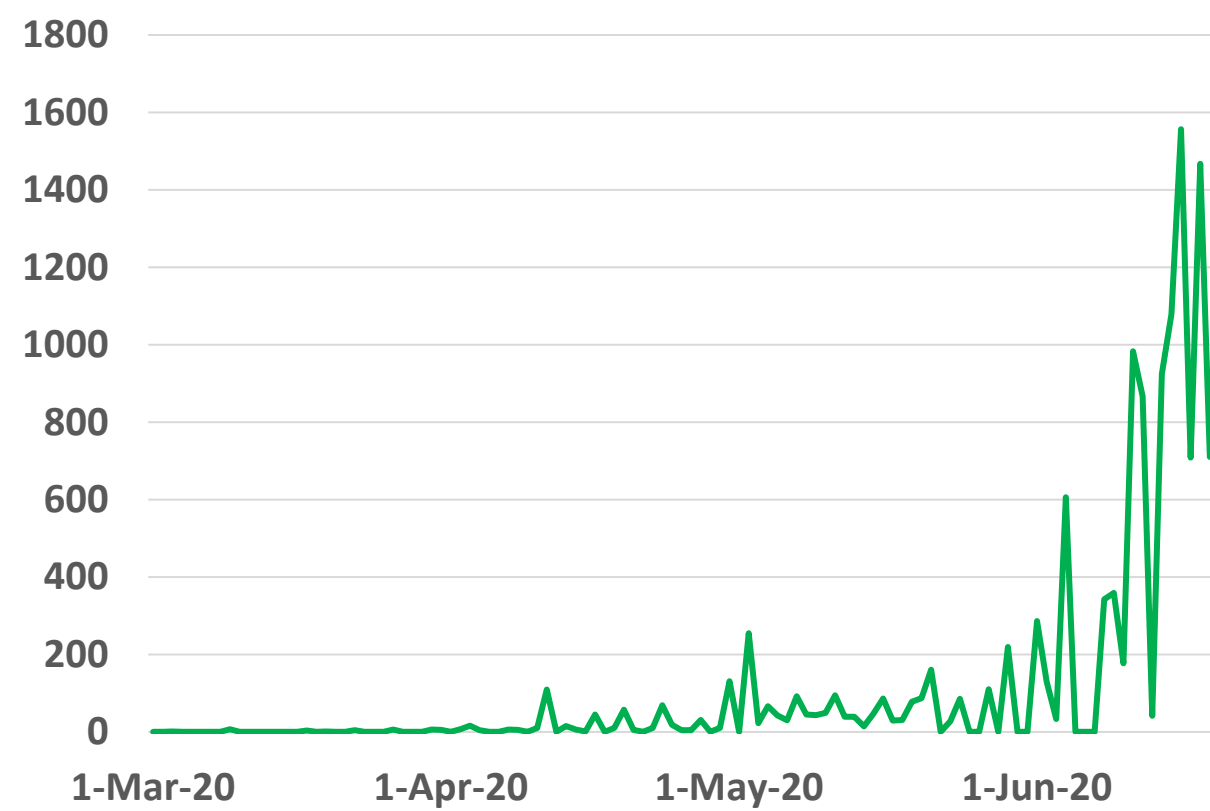
Kuwait



Source : Kuwait ministry of health

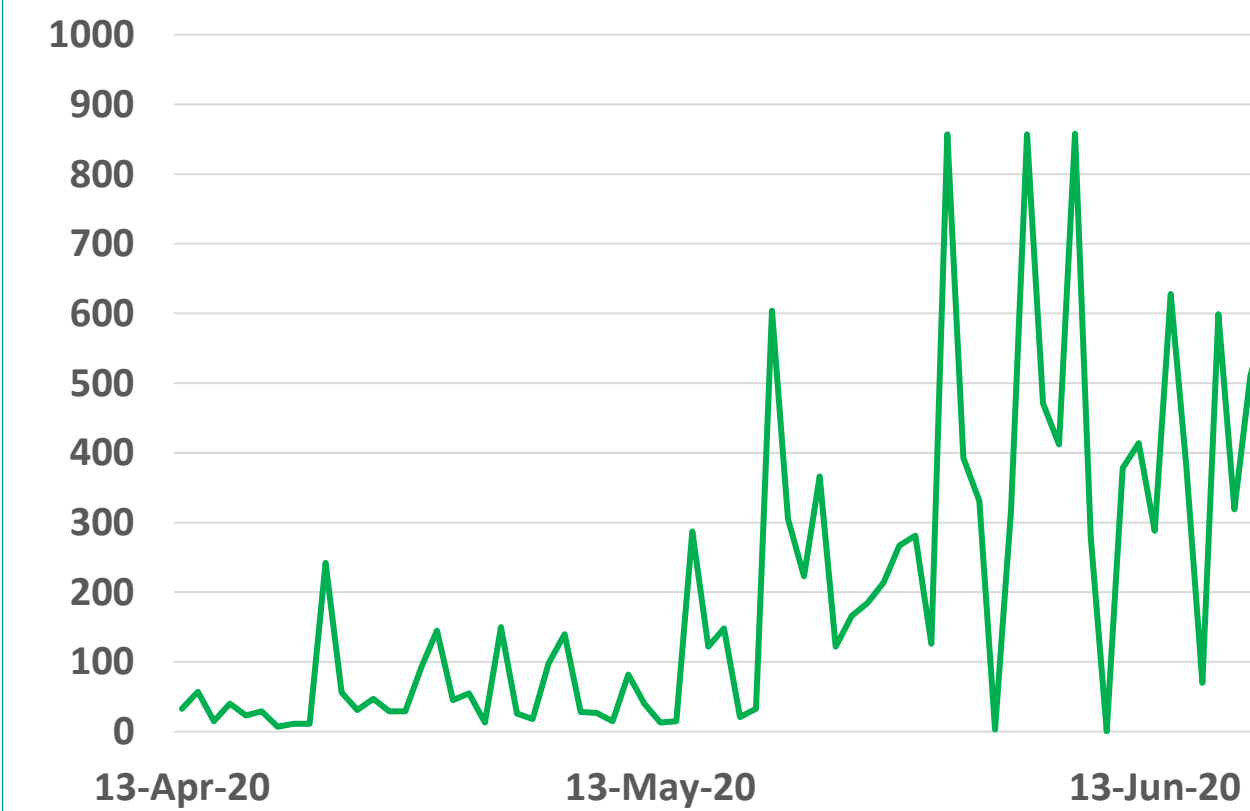
Oman

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Source : Oman ministry of health

Bahrain



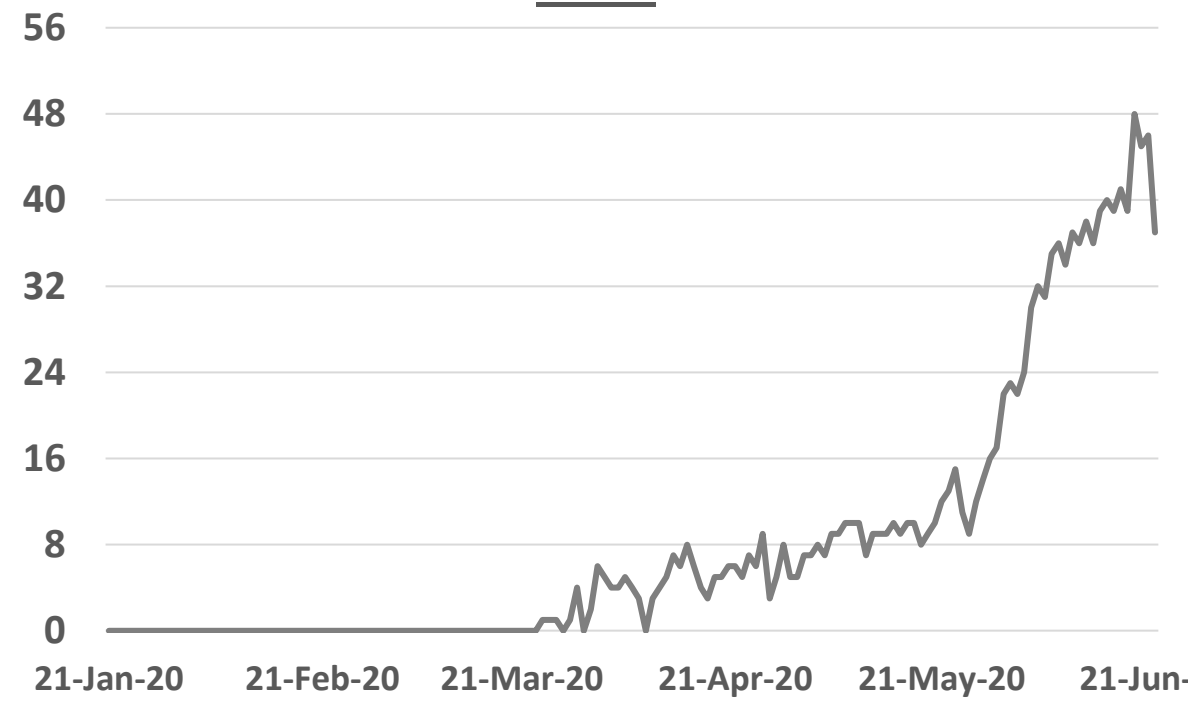
Source : GCCStat

Epidemiology



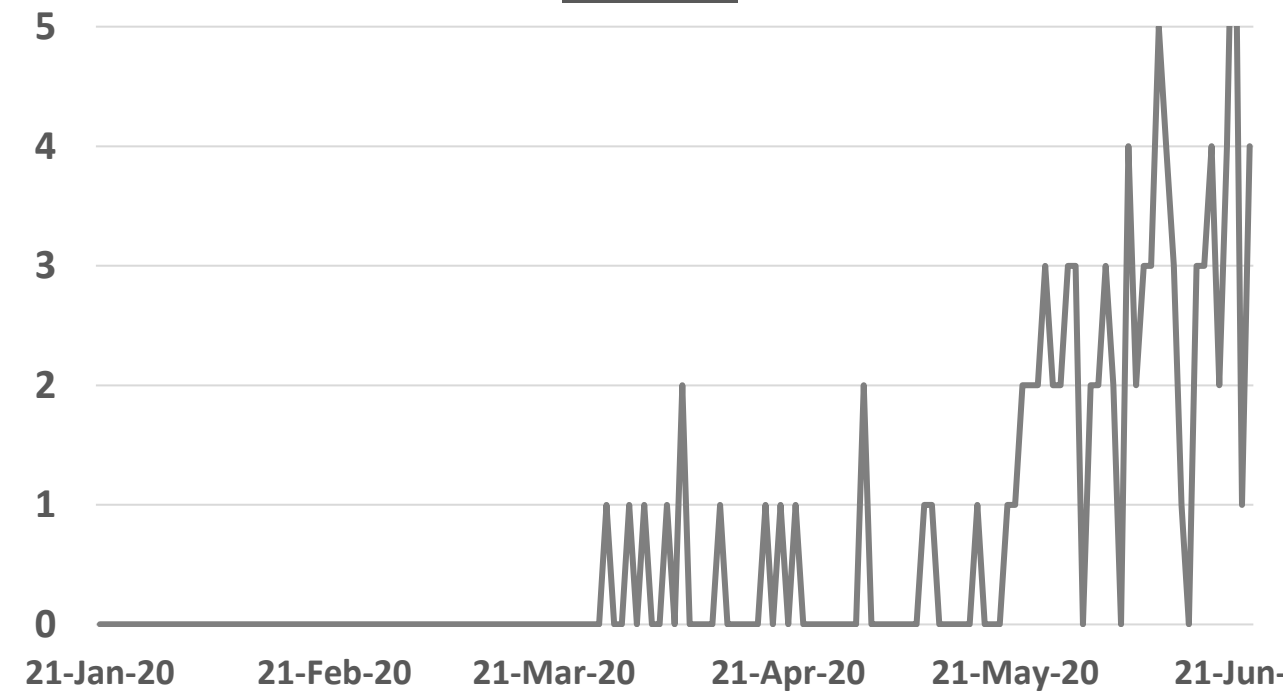
Figure 12: Comparative analysis of the distribution of COVID19 newly death cases in GCC countries (June 21, 2020)

KSA



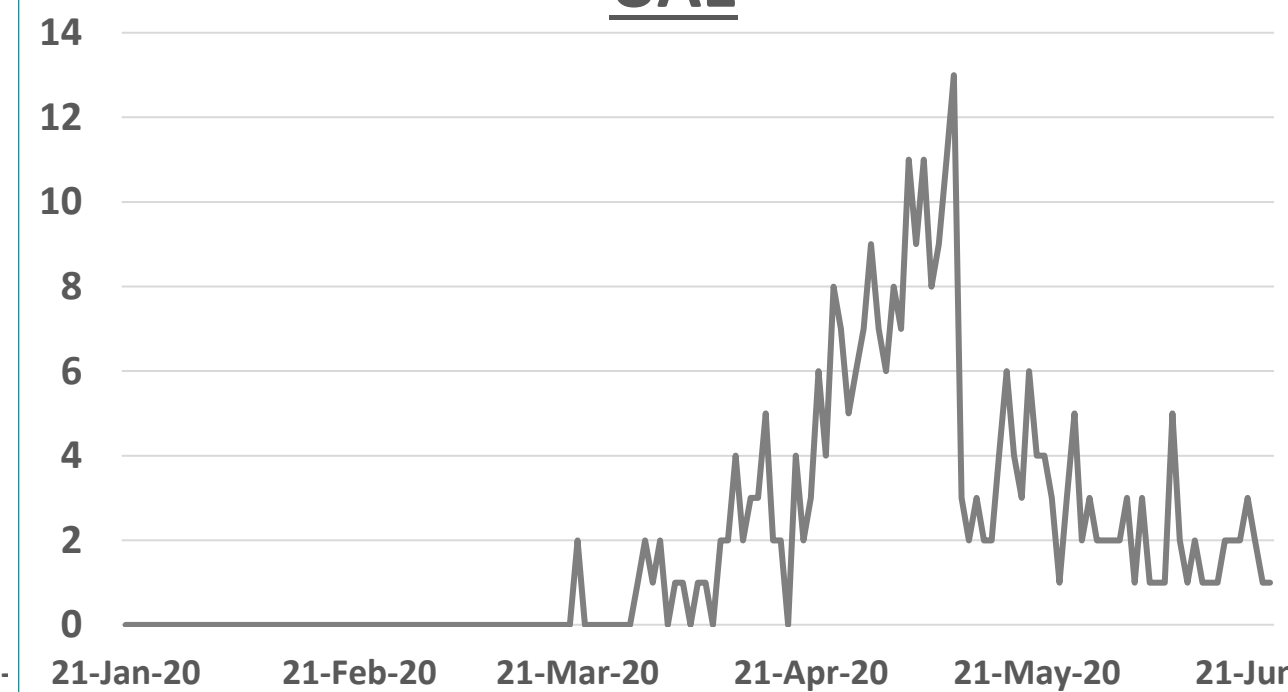
Source : KSA ministry of health

Qatar



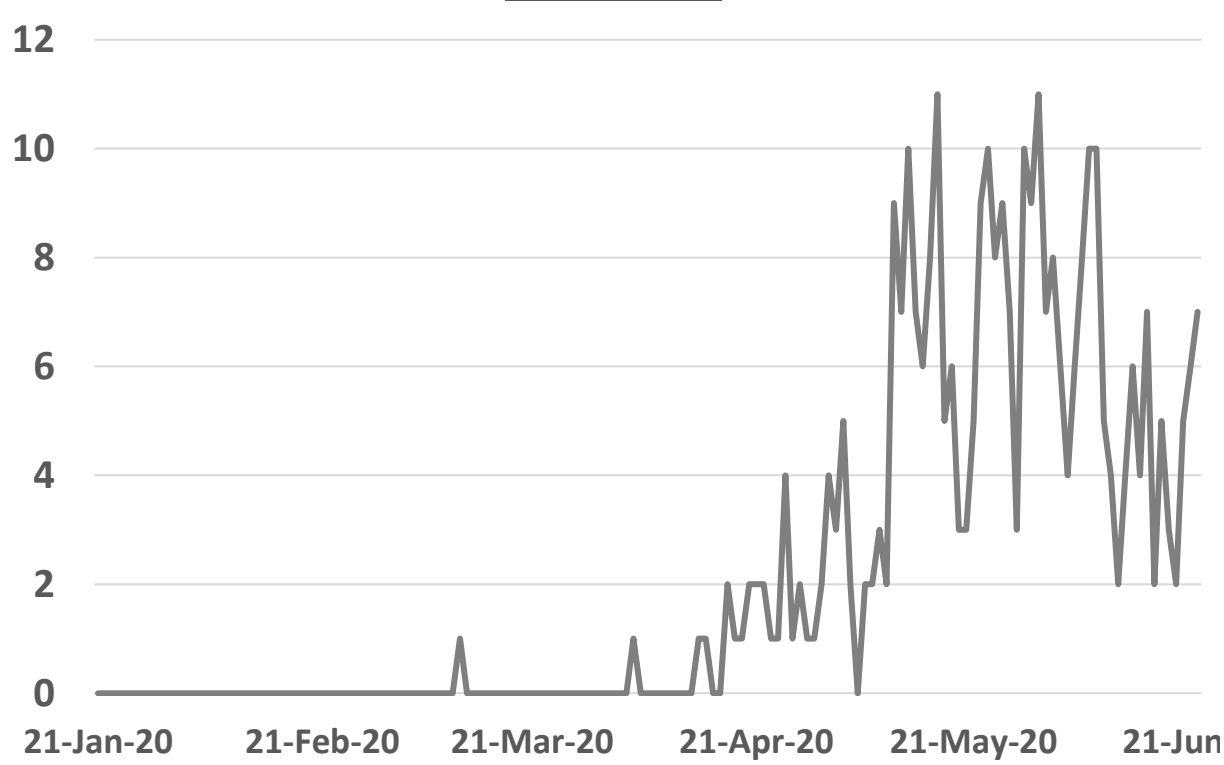
Source : Qatar ministry of health

UAE



Source : National Emergency Crisis and Disaster Management Authority

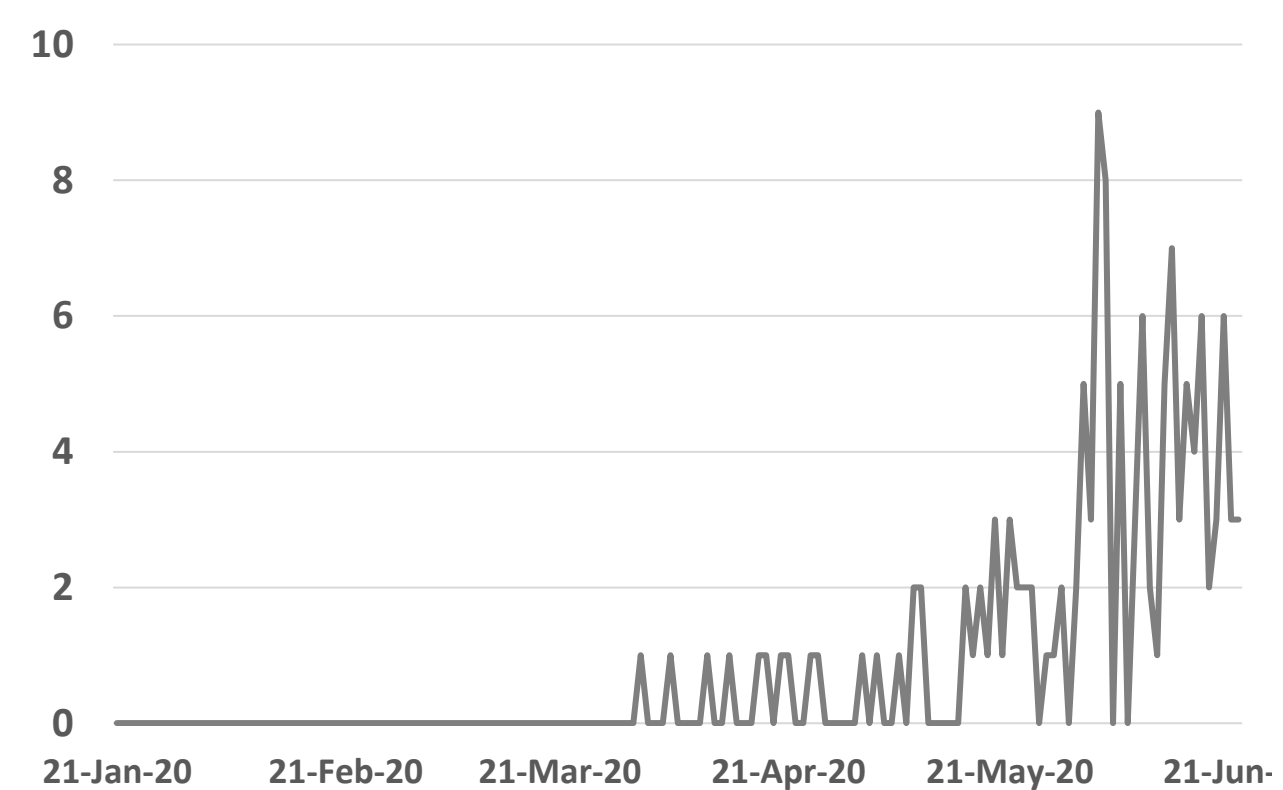
Kuwait



Source : Kuwait ministry of health

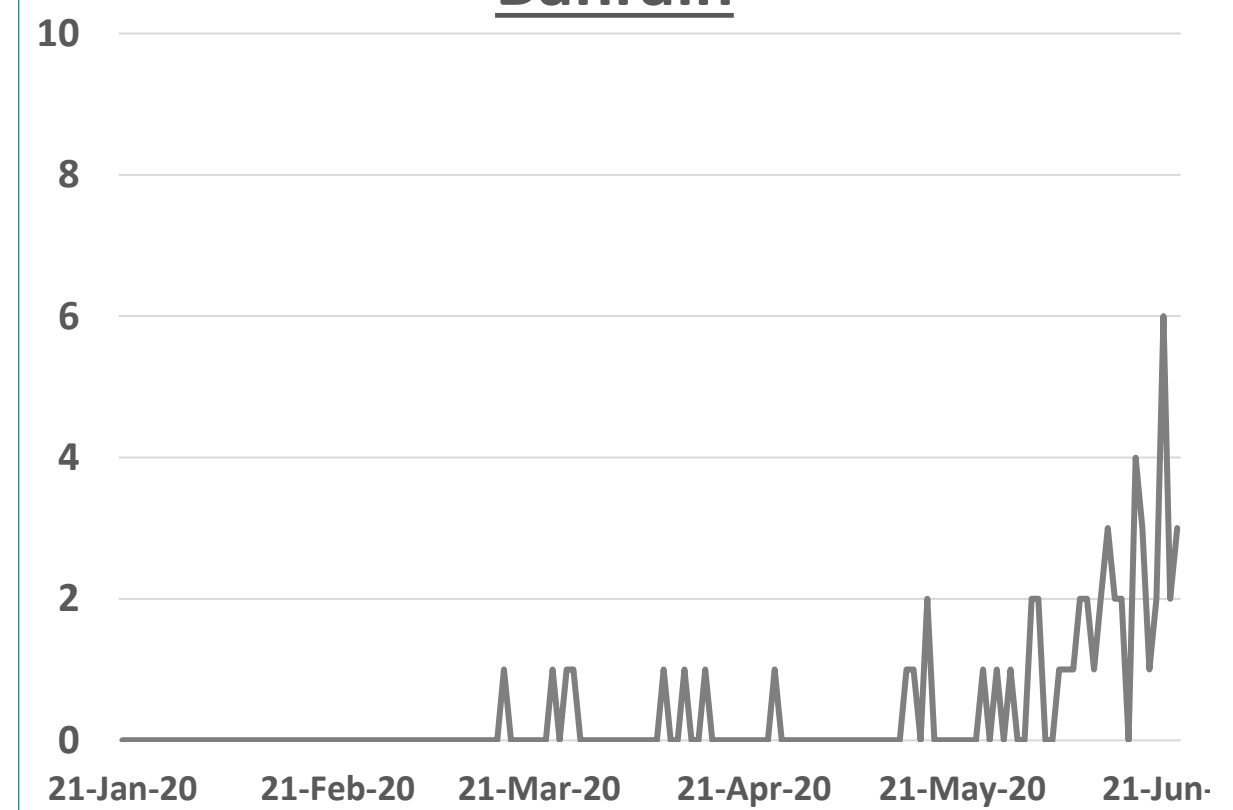
Oman

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Source :Oman ministry of health

Bahrain



Source :WHO



Article 1: Repurposing and reshaping of hospitals during the COVID-19 outbreak in South Korea

Published: April 30, 2020 in [ELSEVIER](#)

Summarized by subject matter expert

Summary:

- In South Korea, the treatment locations were strategically determined by a collaboration between healthcare providers and task force team during the COVID-19 outbreak. When a new COVID-19 case was diagnosed, the task force team and regional management team were notified. The regional management team assigned the patients to hospitals depending on disease severity and room availability. The treatment locations were divided into home quarantine, COVID-19 community facility, dedicated COVID-19 hospitals, and primary, secondary and tertiary hospitals.
- The sudden increase in patients cause a shortage of hospital rooms. Mild patients were expected to home quarantine; however, some mild patients needed to be monitored. Community facilities such as training centers, resorts, and dormitories that were previously used for nonmedical purposes, were repurposed as monitoring stations for patients with mild COVID-19.
- The majority of dedicated COVID-19 hospitals were public health care hospitals that were run by the government, and some secondary and tertiary private hospitals were included. These hospitals were renovated to ensure about a negative pressure isolation room, negative pressure transport chamber, anteroom, dividing walls, and enough space between beds.
- Respiratory care split hospitals separated patients with respiratory symptoms from patients without symptoms from the initial visit to the outpatient clinic through the duration of hospitalization. The purpose of this hospital is to limit unnecessary contact between respiratory patients who might have COVID-19 and other patients to minimize the transmission of COVID-19 in hospitals.
- The collaboration among the health care department, municipal and national government, and public acceptance of stringent hospital restrictions were important. The repurposing and reshaping of hospitals and the reallocation of healthcare providers and facilities might be essential to prepare for the next wave of COVID-19.



Article 2 : Associations Between Built Environment, Neighborhood Socioeconomic Status, and SARS-CoV-2 Infection Among Pregnant Women in New York City

Published: June 18, 2020 [JAMA](#)

Summary:

- The study investigated the associations between the built environment, markers of neighborhood socioeconomic status, and the prevalence of SARS-CoV-2 in pregnant women in the New York city.
- At the time of admission, pregnant women were tested for the SARS-COV-2 USING RT-PCR.

Findings (Table and figures A-F in the next page)

- Of 396 pregnant women tested for by RT-PCR, 71 (17.9%) were infected with SARS-CoV-2. Characteristics of the pregnant women are presented in table (next page) by RT-PCR testing outcome.
- The lowest **probability of infection** was estimated for women living in buildings with very high assessed values (8.2% [95% CI, 1.2%-15.2%]) and the **highest was for those residing in neighborhoods with high household membership** (23.9% [95% CI, 18.4%-29.4%]).
- **Odds of infection were lower** among women **living in buildings with more residential units** (OR, 0.34 [95% CI, 0.16-0.72])
- **Odds of infection were higher:**
 - in buildings with higher assessed values (OR, 0.29 [95% CI, 0.10-0.89])
 - in neighborhoods with higher median incomes (OR, 0.32 [95% CI, 0.12-0.83]).
 - among women residing in neighborhoods with high unemployment rates (interdecile OR, 2.13 [95 CI, 1.18-3.83])
 - among women in neighborhoods with large household membership (OR, 3.16 [95% CI, 1.58-6.37])
 - among women in neighborhoods with greater household crowding (interdecile OR, 2.27 [95% CI, 1.12-4.61]).
- There was no statistically significant association between SARS-CoV-2 infection and:
 - Population density (interdecile OR, 0.70 [95% CI, 0.32-1.51])
 - Poverty rate (interdecile OR, 2.03 [95% CI, 0.97-4.25]).



Article 2 : Cont., Summary:

Table. Cohort Characteristics

	SARS-CoV-2 status		P value
	Negative (n = 325)	Positive (n = 71)	
Maternal age, median (IQR), y	31.0 (27.0-35.0)	27.0 (24.0-32.0)	<.001 ^a
Gestational age, median (IQR), wk	39.0 (38.1-39.7)	39.0 (37.4-39.7)	.63 ^a
Gravidity (IQR)	2 (1-4)	2 (1-3)	.04 ^a
Parity (IQR)	1 (0-1)	0 (0-1)	.37 ^a
Hypertension, No. (%) ^b	26 (8.0)	7 (9.9)	.61 ^c
Diabetes, No. (%) ^b	18 (5.5)	2 (2.8)	.34 ^c

Conclusion

SARS-CoV-2 transmission among pregnant women in New York City was associated with neighborhood- and building-level markers of large household membership, household crowding, and low socioeconomic status. These data may aid policy makers in the design of interventions to reduce the spread of SARS-CoV-2