

ABU DHABI PUBLIC
HEALTH CENTRE

مركز أبوظبي
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Scientific Research Monitoring on COVID-19

27 April 2020

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.
- SARS-COV2 stay viable in aerosol for hours and in surface up to 3 days.
- Two strain have been identified for SARS-COV2 (L type (more aggressive) and S type .

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).
- Isolation is the best measure to control transmission.

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. No evidence of transmission through breast milk.

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.
- WHO forum held 11-12 Feb 2020 to mobilize research on COVID19 vaccinations and therapies.

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)



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 discussing the importance of using a proper modeling to guide political response to COVID19.
- **Treatment :** a retrospective study in the US showed Hydroxychloroquine use with or without co-administration of azithromycin **did not improve mortality or reduce the need for mechanical ventilation in hospitalized patients.**
- **Digital Health:** a real-time dashboard for clinical trial have been developed to allow easy access of information and update on COVID19 research.

Due to abundant COVID19 information resources and given the urgent need to keep up with the updates .Below is a cluster of other academic articles for interested reviewer.

Others

[Travel restrictions hampering COVID-19 response](#)

[COVID-19 Research in Brief: 18 April to 24 April, 2020](#)

[Pharmacists' readiness to deal with the coronavirus pandemic: Assessing awareness and perception of roles](#)



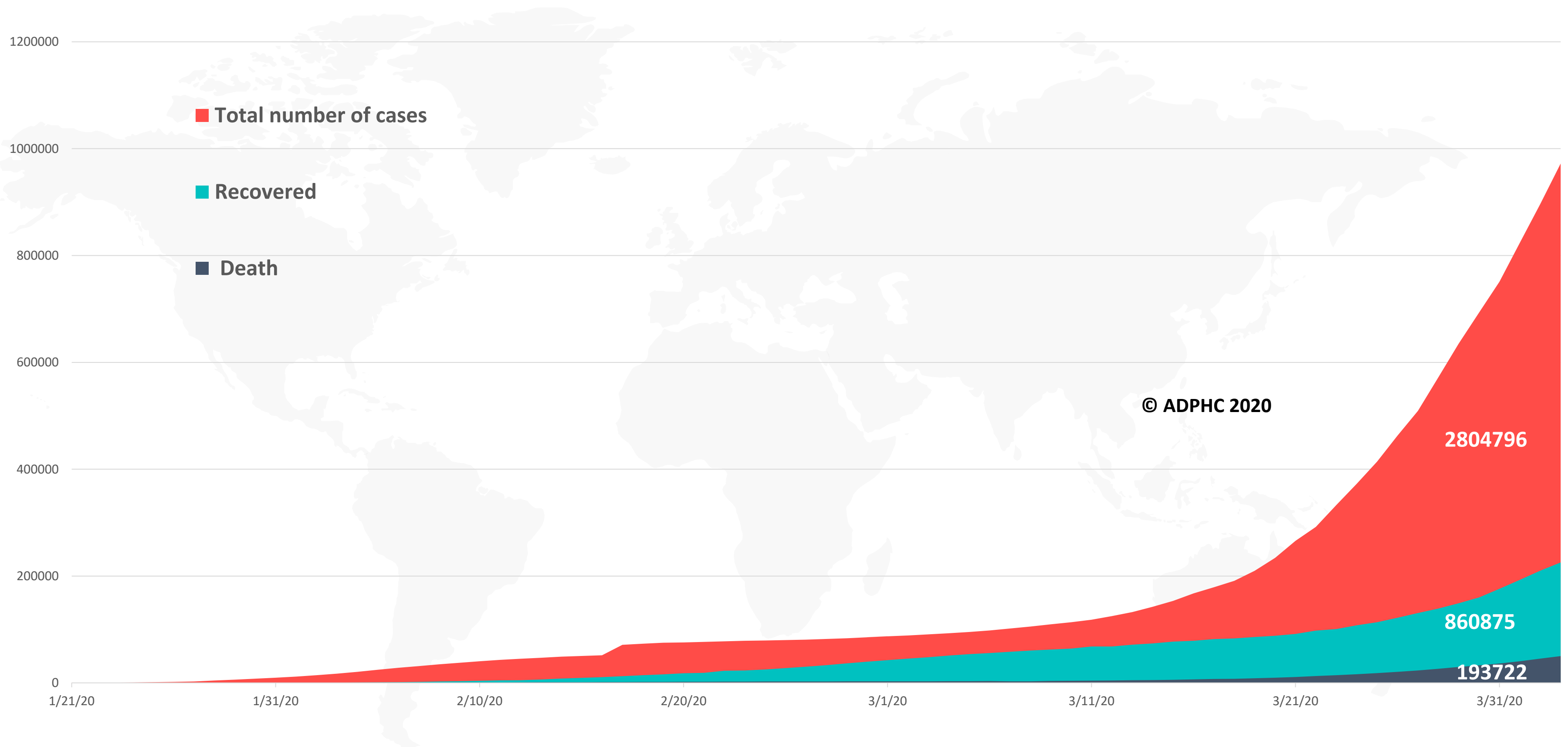
WHO daily report 26 April 2020

- Public health systems are coming under severe strain as the COVID-19 pandemic continues. Countries must also continue to focus on other health emergencies and make progress against diseases such as malaria or poliomyelitis (polio). A new analysis on malaria supports the call to minimize disruptions to malaria prevention and treatment services during the COVID-19 pandemic.
- The WHO Regional Office for the Americas urges countries to **strengthen vaccination against seasonal influenza and measles to prevent respiratory illness and vaccine-preventable disease outbreaks** during the COVID-19 pandemic.
- The core protocol for therapeutics against COVID-19 has been published by the WHO R&D Blueprint Working Group. More information is available [here](#).
- The WHO Regional Office for Europe has published key considerations for the gradual easing of the lockdown restrictions introduced by many countries in response to the spread of COVID-19 across the European Region.

Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21st to April 26, 2020)

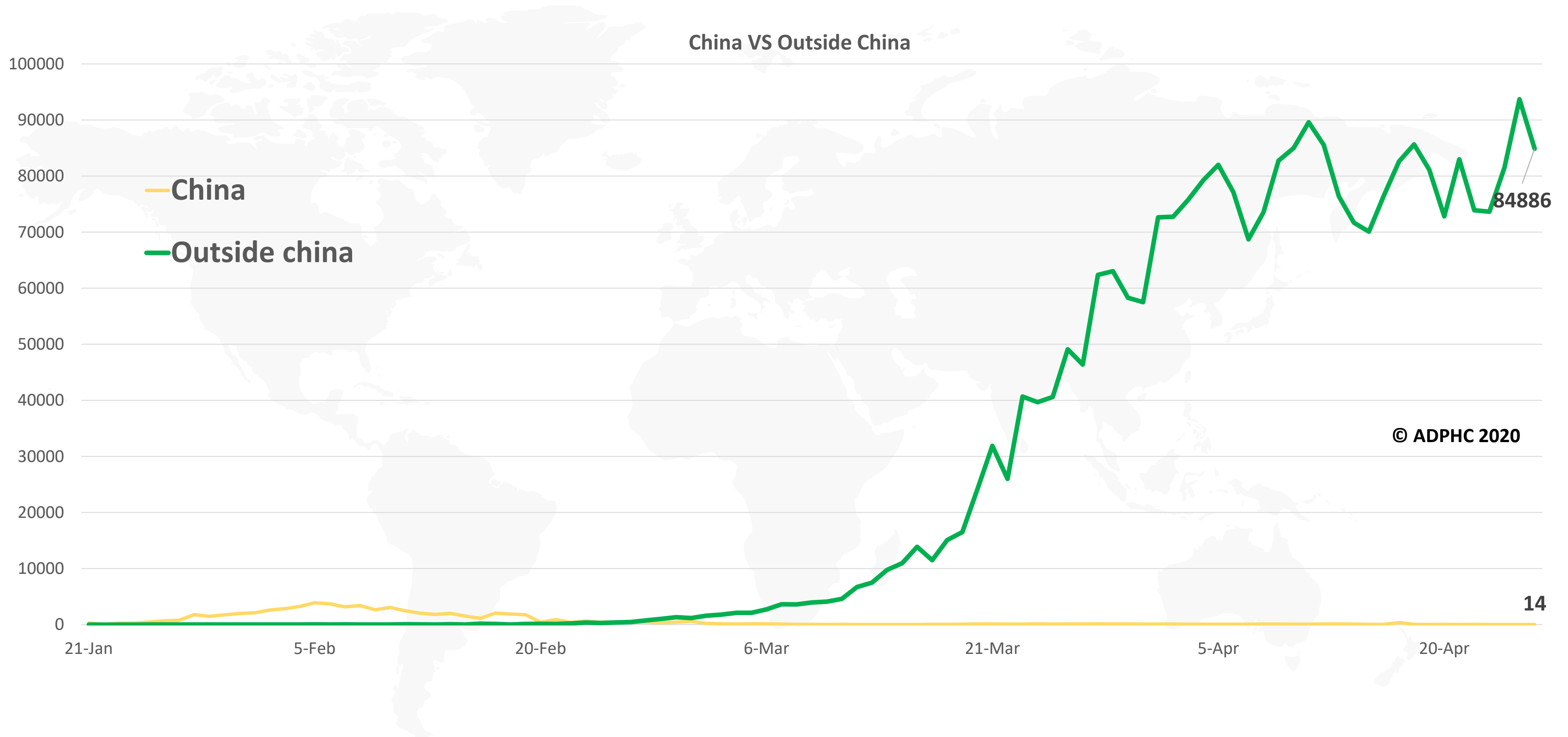


Line graph published by Abu Dhabi Public Health Center 2020.

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



Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 26, 2020).



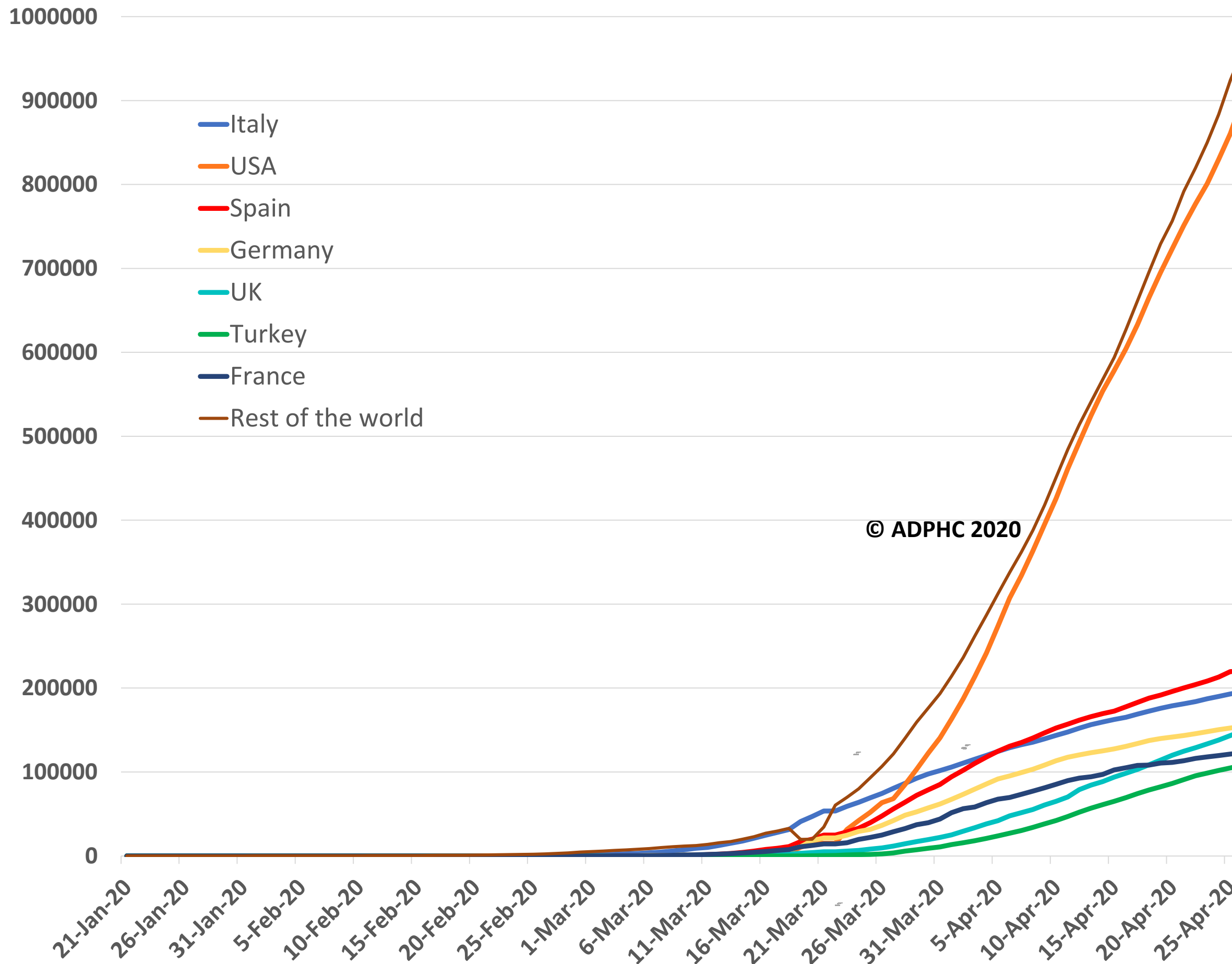
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

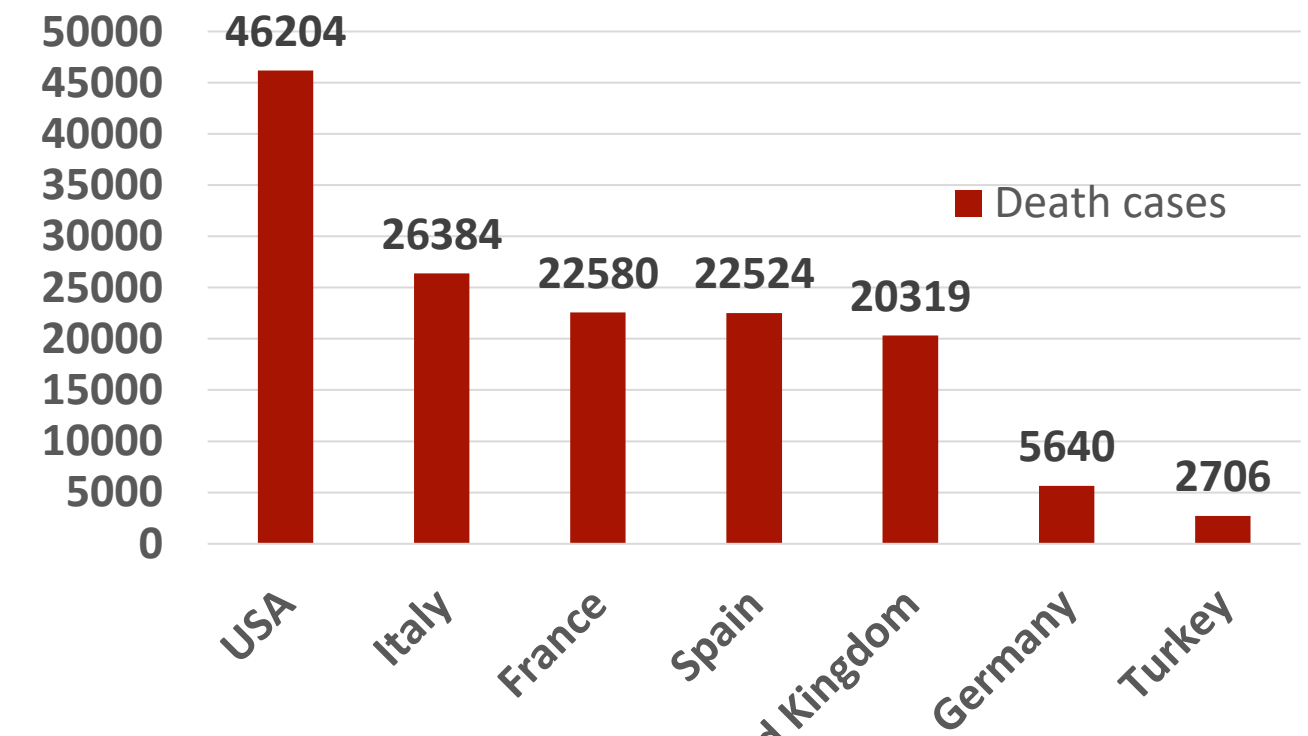
Epidemiology



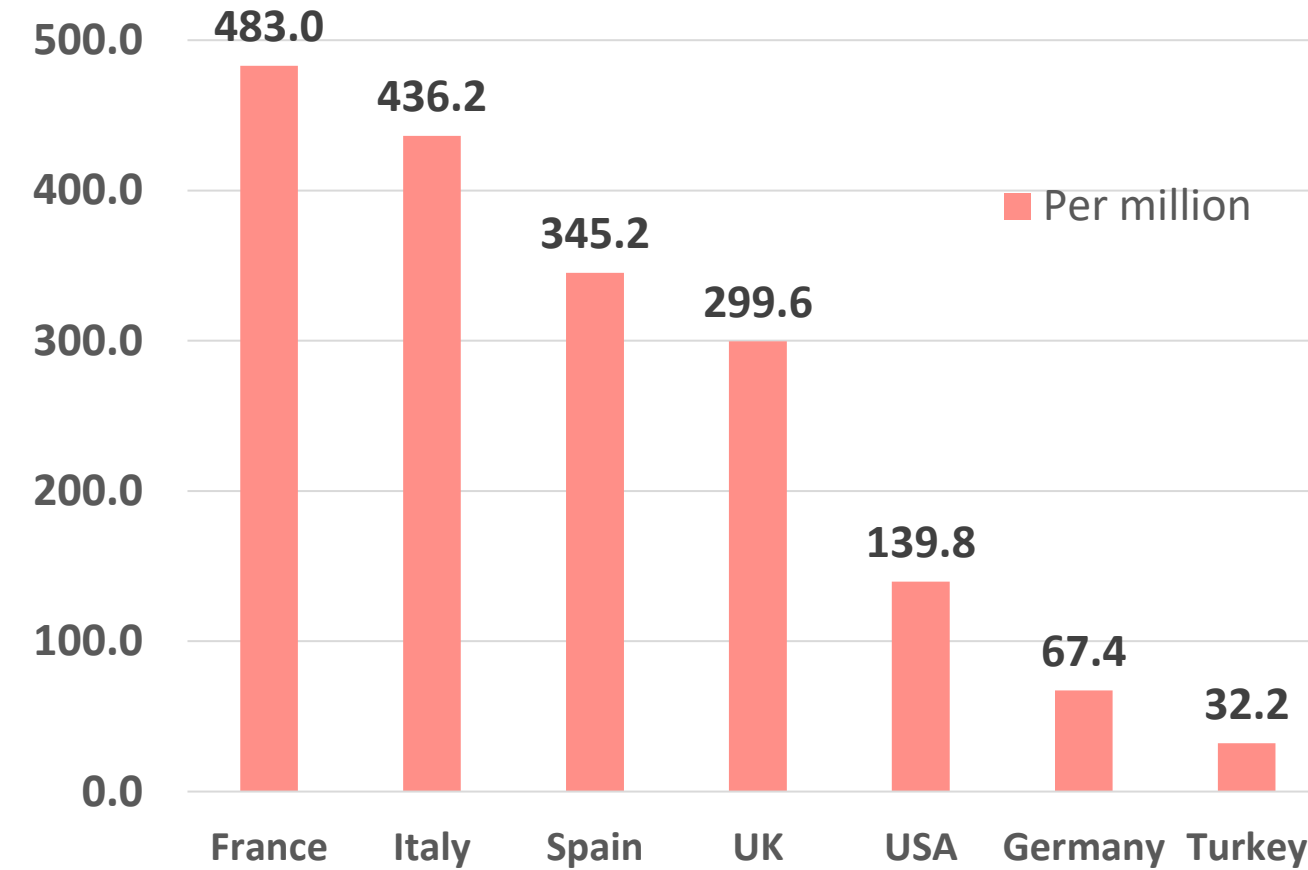
Figure 3 : Top 7 countries in the total number of cases due to COVID-19 (January 21 to April 26, 2020).



TOTAL DEATHS



DEATHS PER MILLION



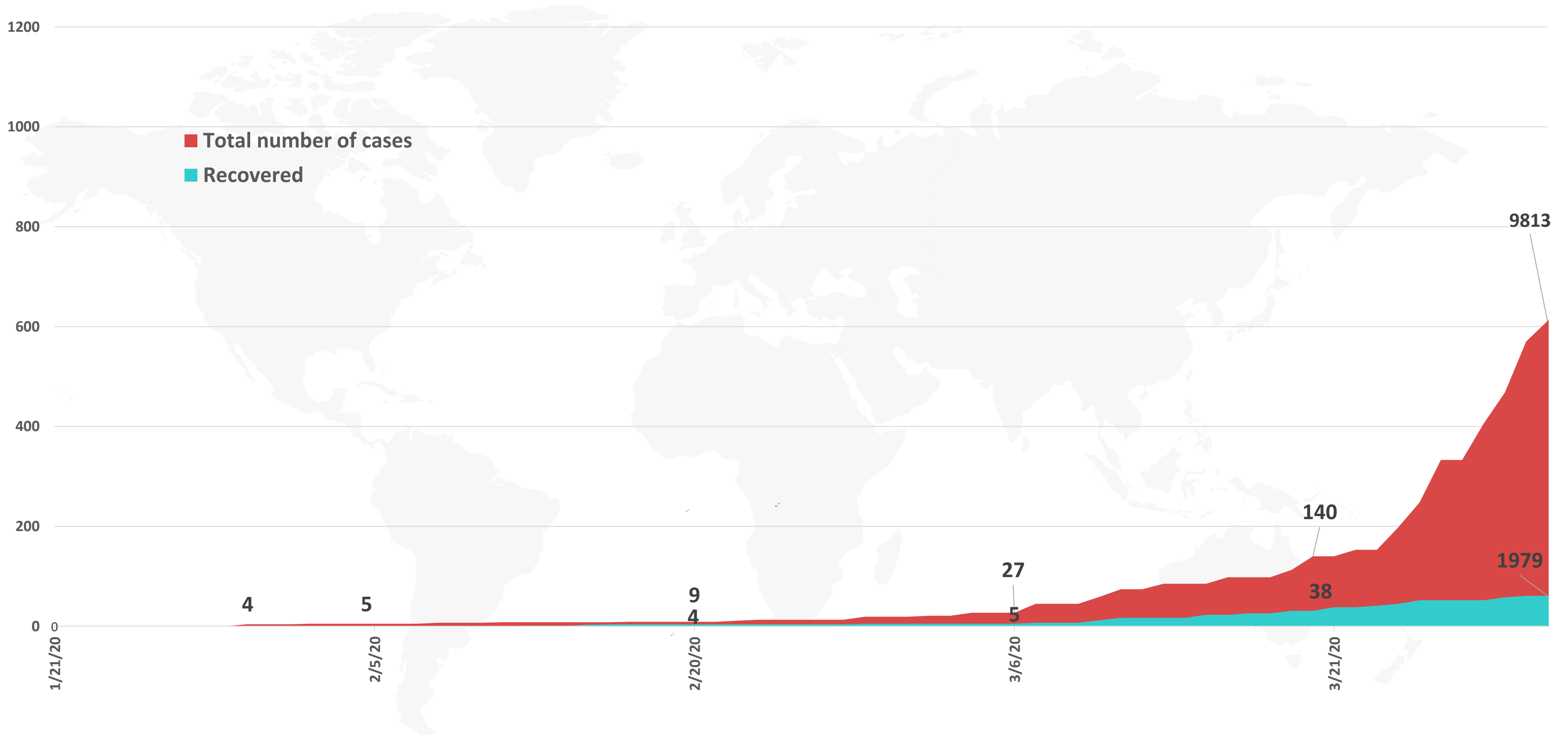
Line graph published by Abu Dhabi Public Health Center 2020.

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

Epidemiology



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



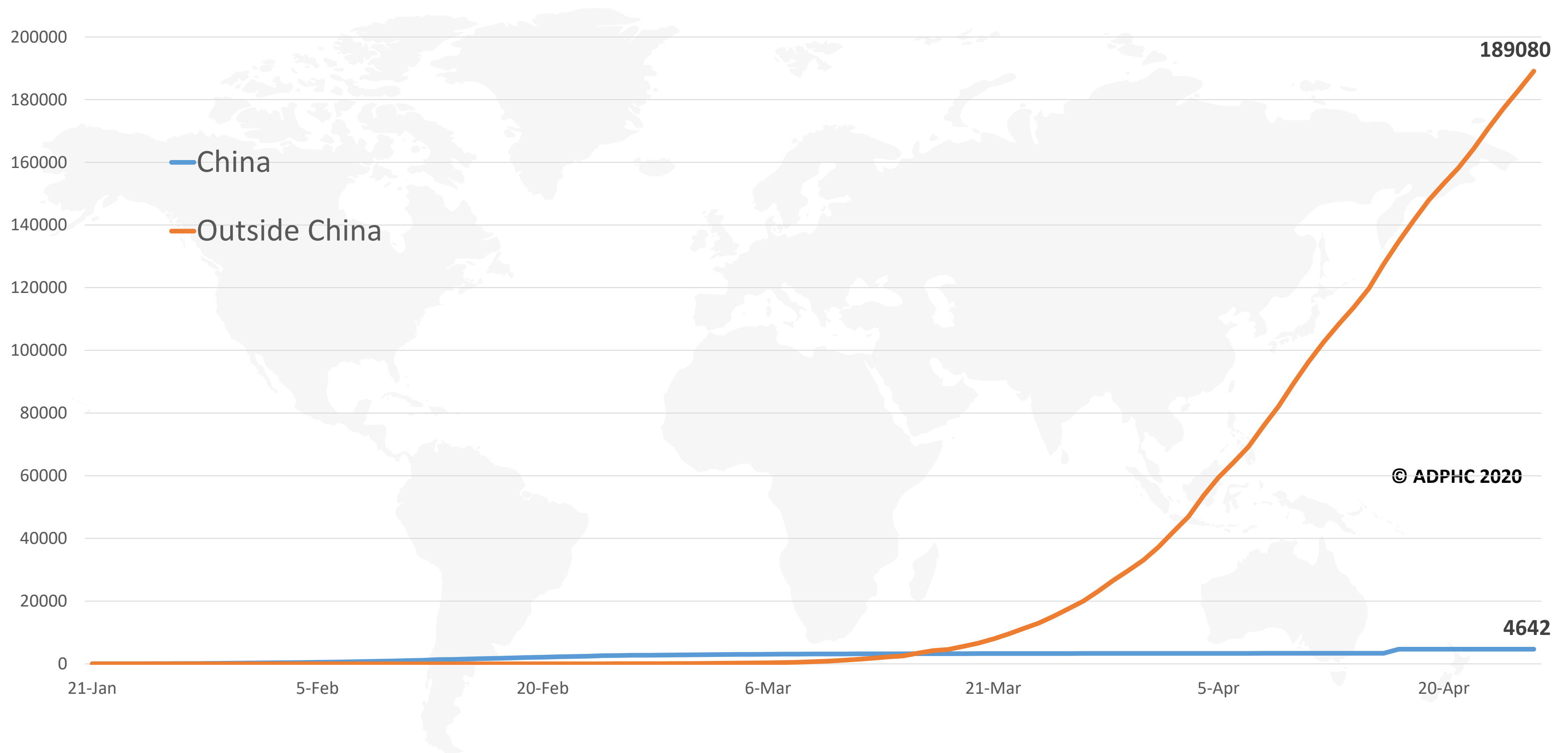
Line graph published by Abu Dhabi Public Health Center 2020.

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 April 26, 2020).

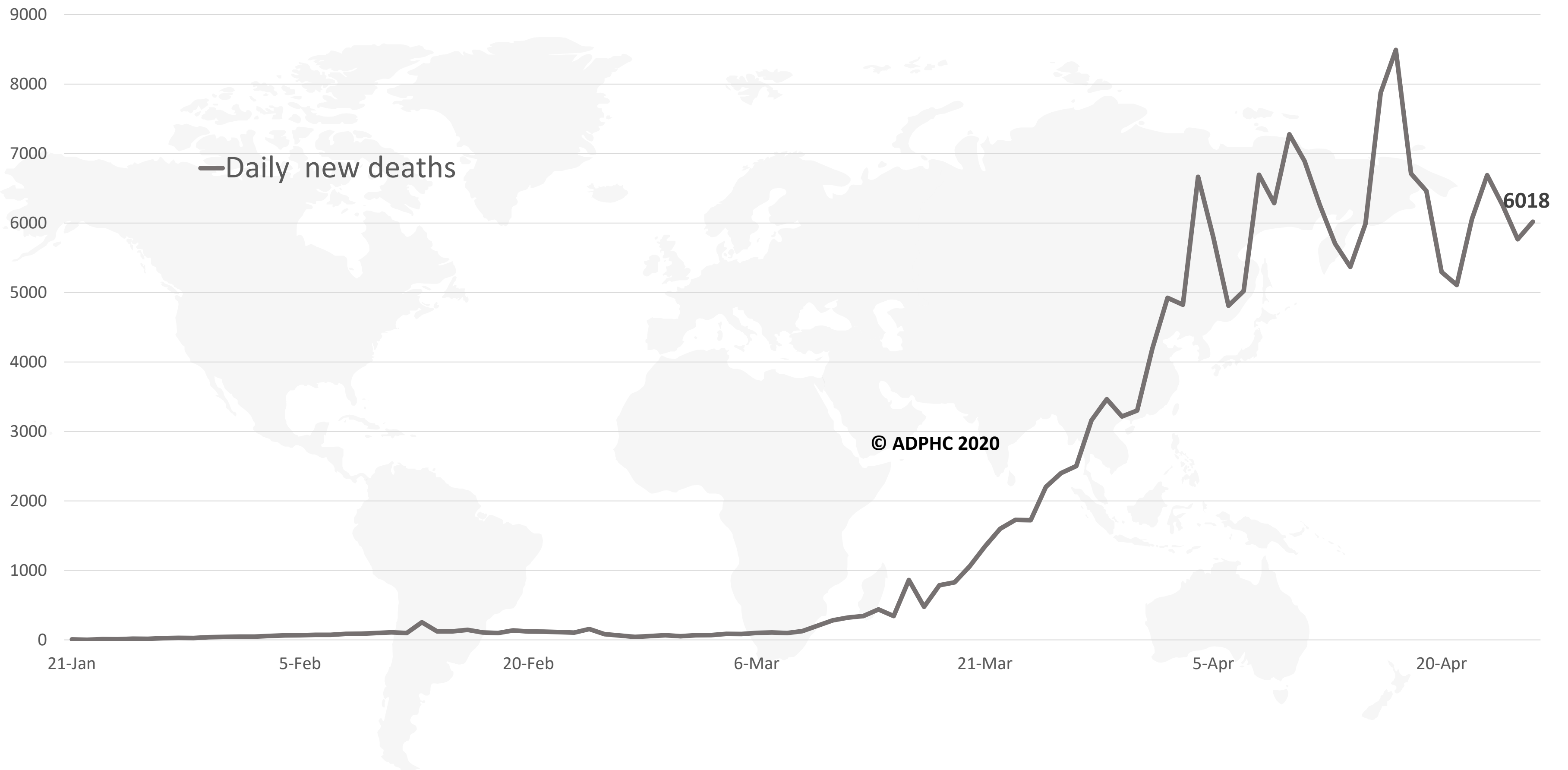


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 6: Global daily new deaths due to COVID-19 (January 22 to April 26, 2020).



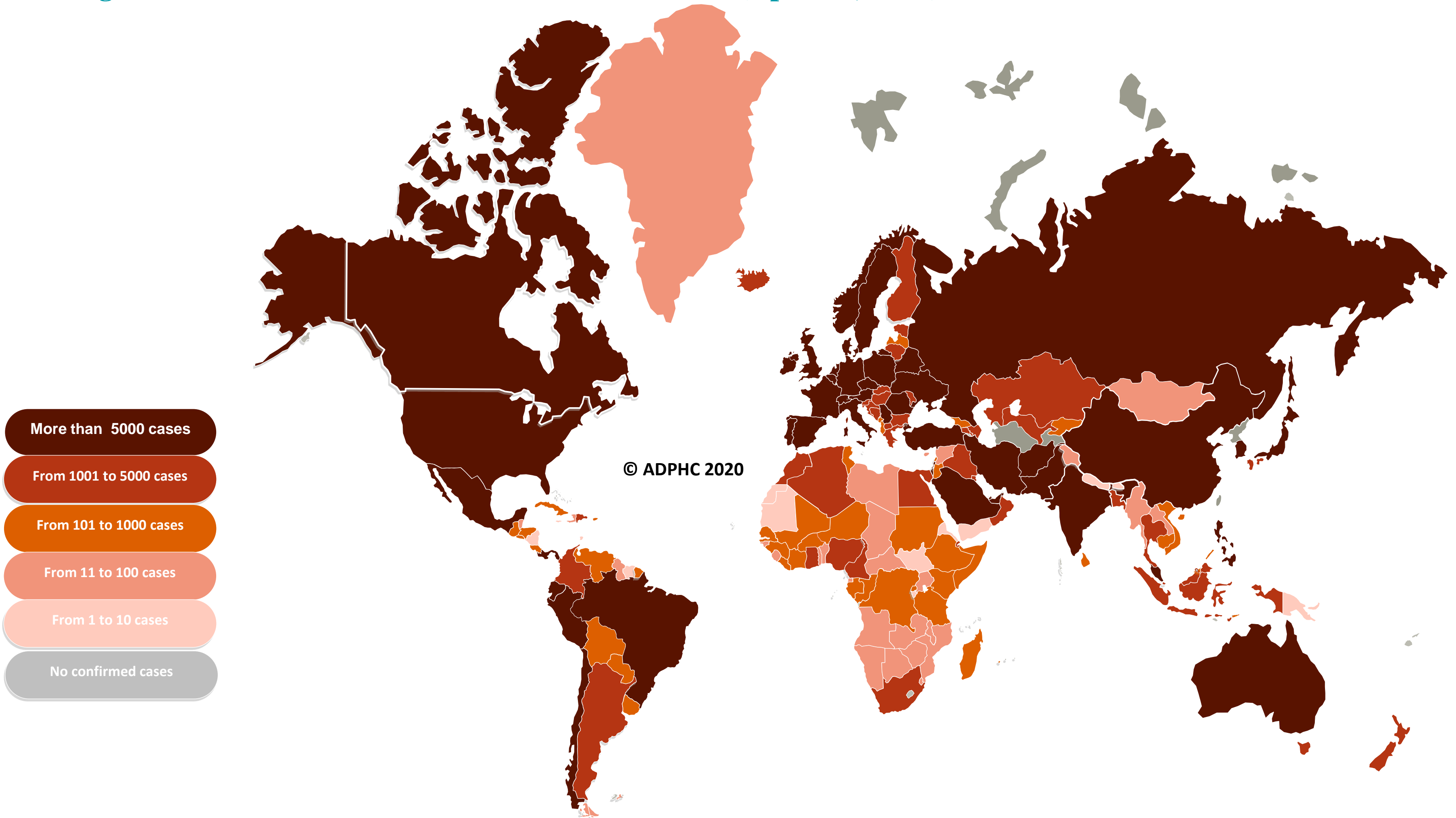
Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)

Epidemiology



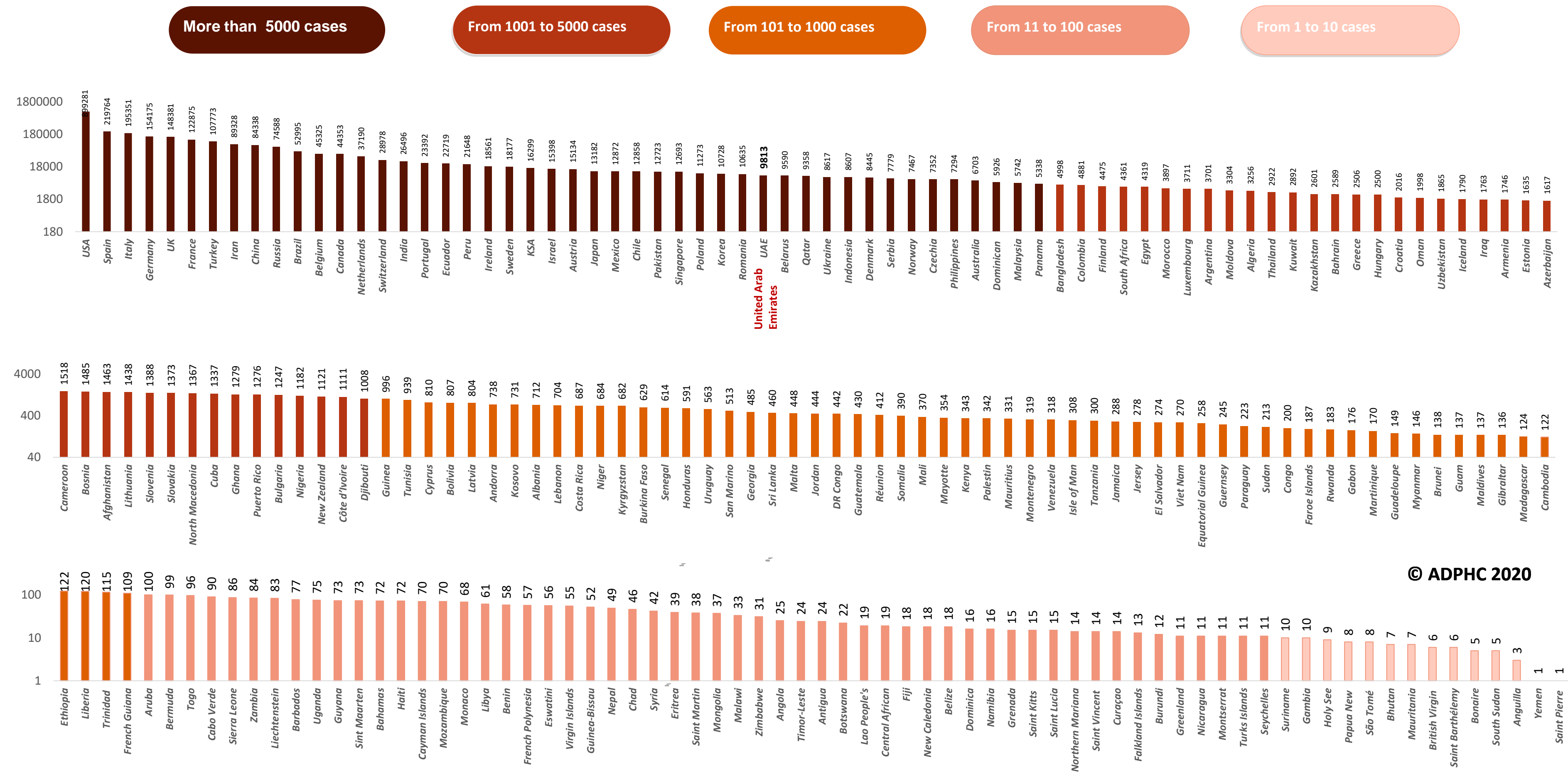
Figure 7a : Global distribution of COVID-19 cases (April 26, 2020).



Map chart published by Abu Dhabi Public Health Center 2020.



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 26, 2020)



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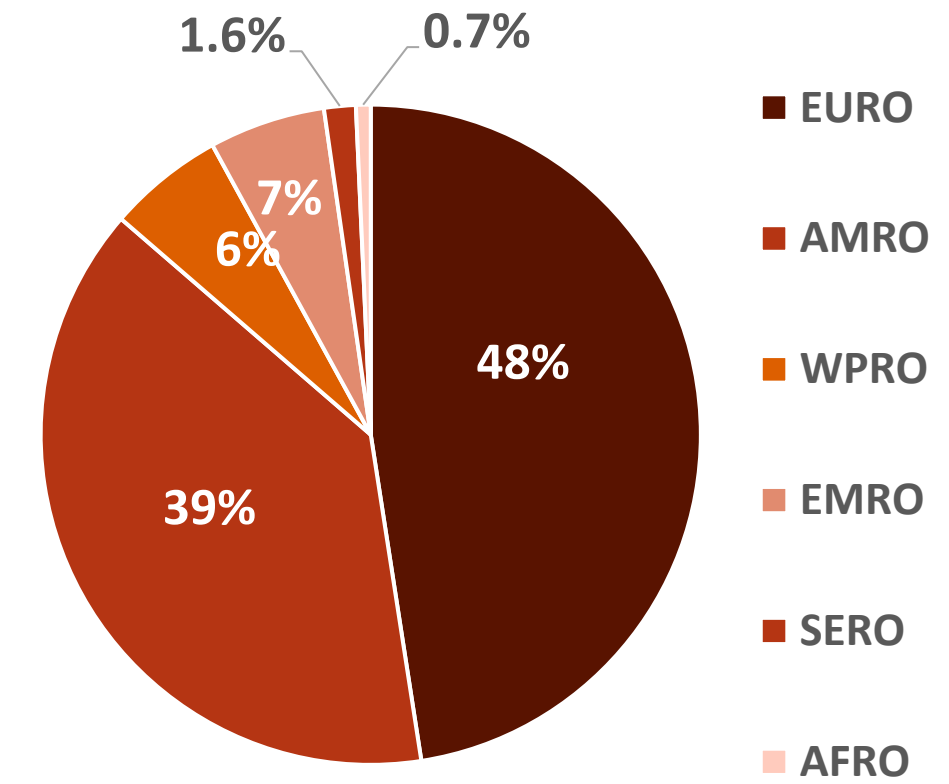
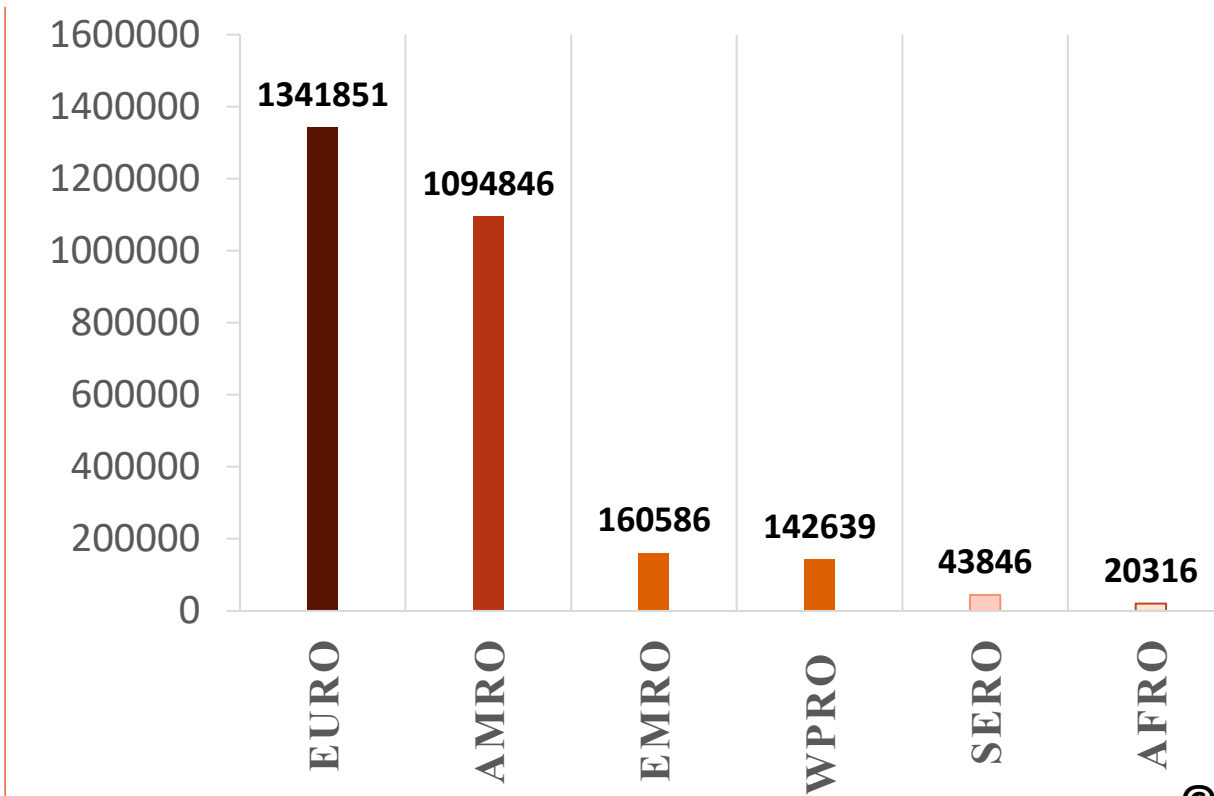
Map chart published by Abu Dhabi Public Health Center 2020.

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



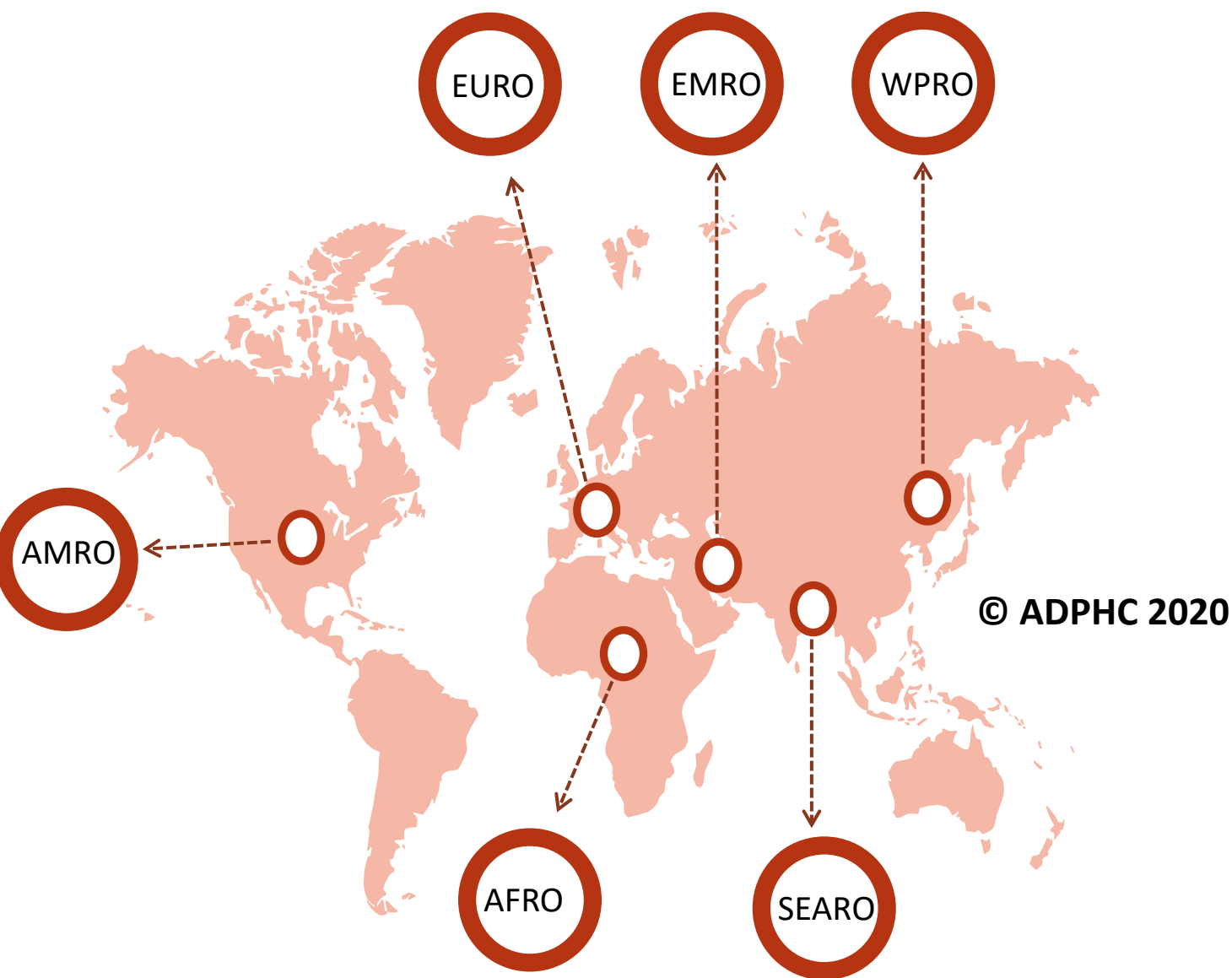
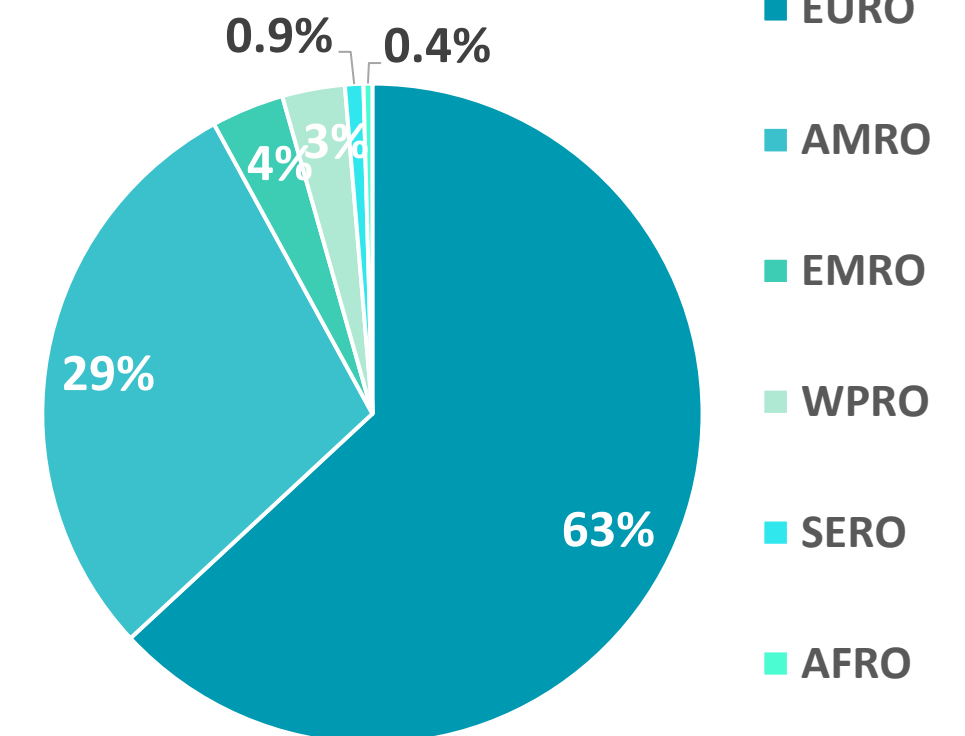
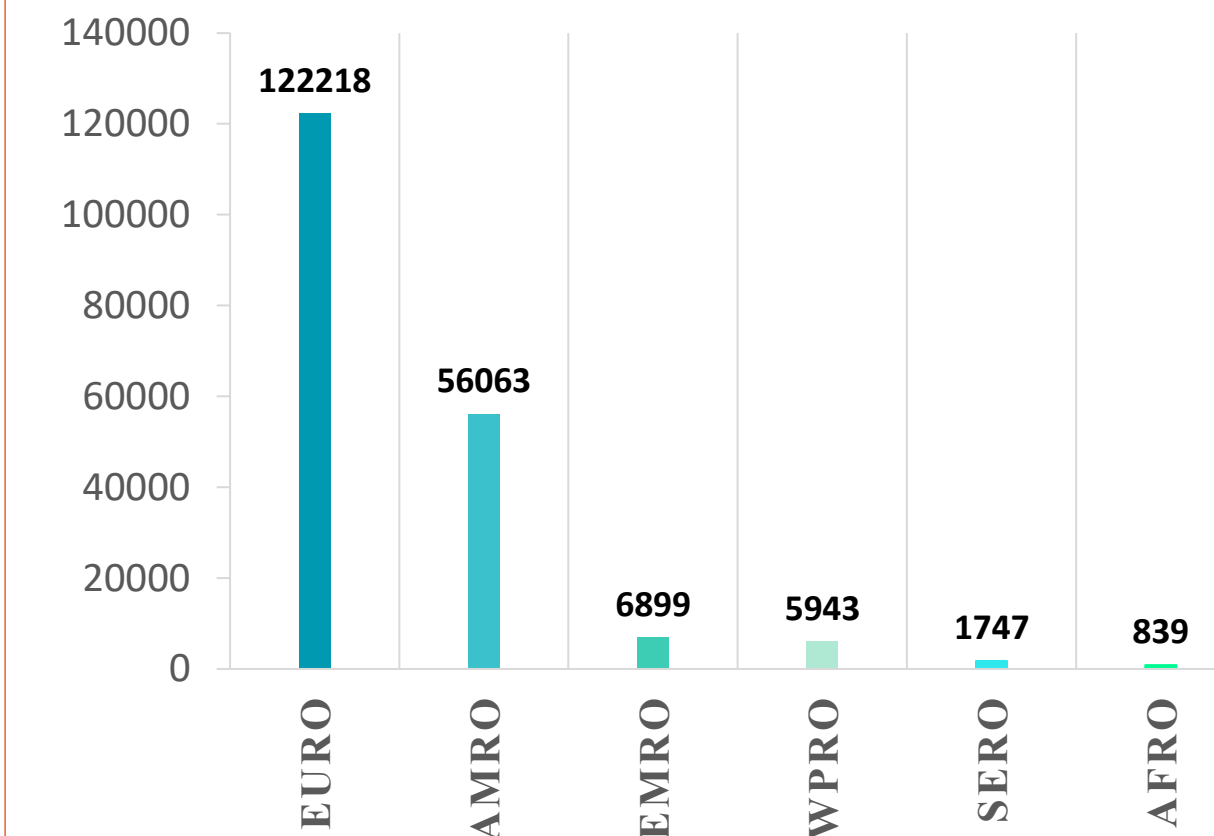
Figure 8: illustrate the Global distribution of COVID19 cases per region (April 26, 2020)

INFECTED



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DEATH



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Map chart published by Abu Dhabi Public Health Center 2020.

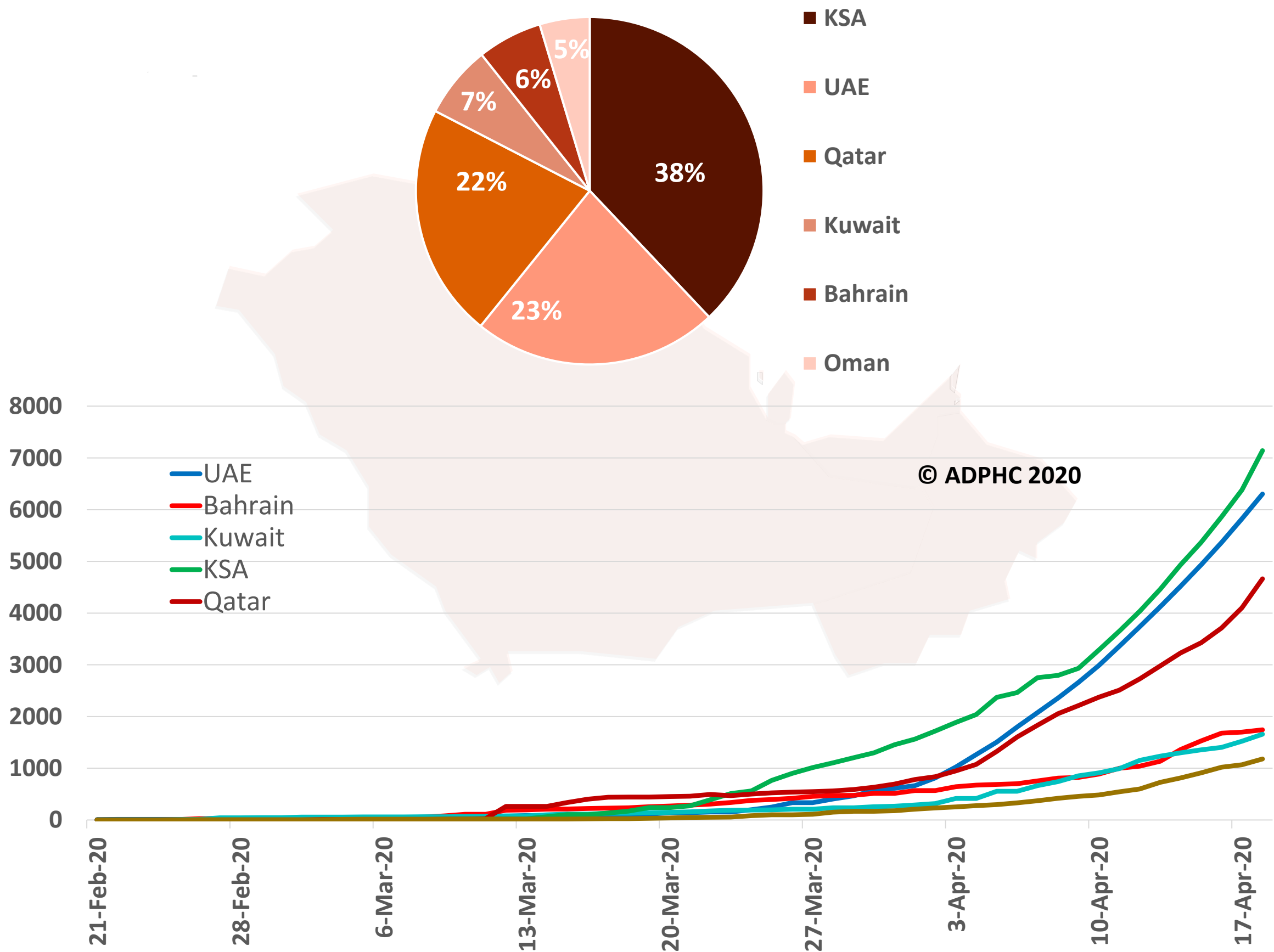
Data resources: [WHO](http://www.who.int)

Epidemiology

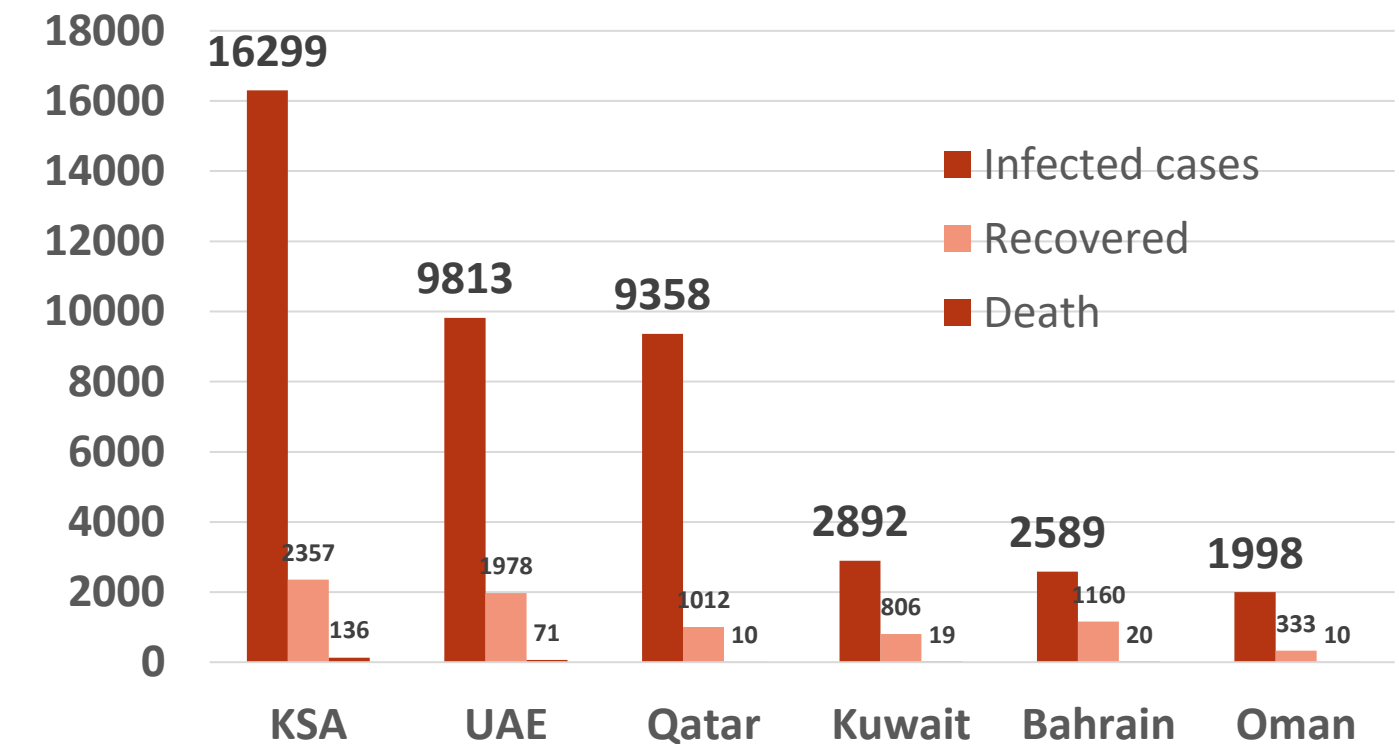


Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 26, 2020)

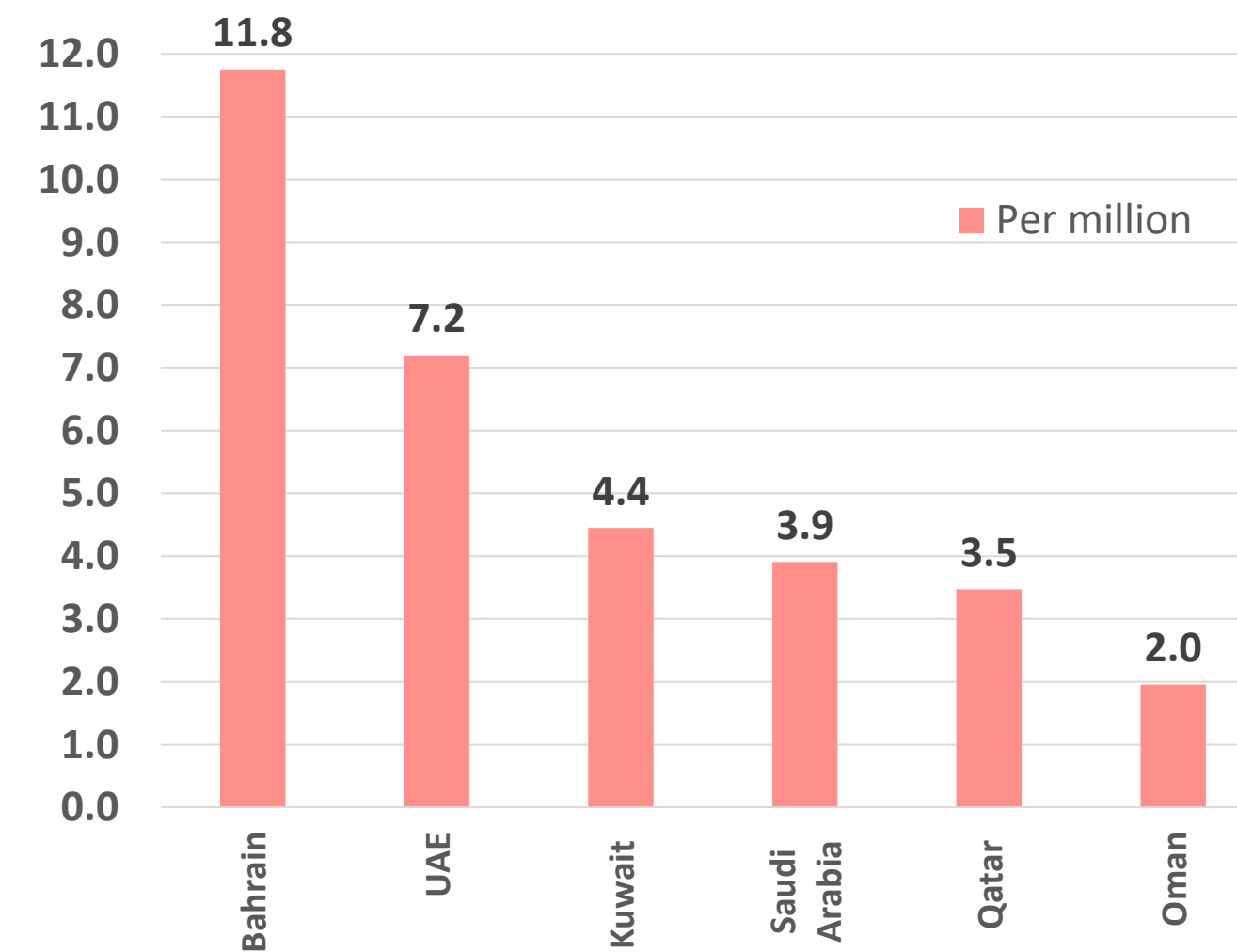
TOTAL NUMBER OF INFECTED CASES



Total number of infected, recovered and Deaths



Death per million



charts published by Abu Dhabi Public Health Center 2020.

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

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Public Health Response:



Article 1: Modelling can only tell us so much: politics explains the rest

Published: April 25 2020 in [The Lancet](#)

Summarized by subject matter expert

Summary:

This article briefly summarize the most important elements in a book “*The Rules of Contagion: Why Things Spread—and Why They Stop*” by author Adam Kucharski.

This book details the history and logic behind how a disease's spread is forecast, and what assumptions are vital to public health planning.

The most notable things in the book:

- Policy makers need epidemiologists and mathematical models to understand
 - How the infection started?
 - How many people might have been infected?
 - How adhering to public health guidance to remain at home alters patterns of disease transmission?
 - How an infection affect the financial world, online gaming, social media trends, or clusters of gun violence?

Role of Politics/Politicians

However, this book failed to account for the role of politics or politicians in making decisions during a time of an epidemic or pandemic. For example,

- Decisions to lockdown nations are inherently political, and governments need not only modelling advice but also the demands of their economies, popular sentiment, and the political costs of different decisions.
- Given the expert opinions of epidemiologist and information from models, this article claims to hold politicians accountable for any public health shortcomings.

Importance of Mathematical Modelling

- The most widely used model which describes the transmission of infectious diseases between susceptible and infective individuals and provides the basic framework for almost all later epidemic is **Susceptible–Infectious–Recovered model or SIR model**

S = the number of **susceptible** individuals

I = the number of **infected** individuals

R = the number of **recovered** individuals

Treatment:



Article 2: Outcomes of hydroxychloroquine usage in United States veterans hospitalized with Covid-19

Published: April 21, 2020 , in [medRxiv](#)

Summary:

- A retrospective data analysis was conducted from patients (n=368) hospitalized with COVID-19 in **all United States Veterans Health Administration** medical centers from March 9 to April 11, 2020. Patients were categorized based on medication exposure to hydroxychloroquine (HC) and azithromycin (AZ) - a) treated with HC (n=97); b) treated with HC and AZ (n=113); or c) not treated with HC (n=158). The study outcomes were the result of the hospitalization (discharge or death) and if mechanical ventilation was required.
- Death rates among HC, HC and AZ, and no HC groups were 27.8%, 22.1%, and 11.4% respectively. Mechanical ventilation among HC, HC and AZ, and no HC groups were 13.3%, 6.9% and 14.1% respectively. There was a higher risk of death from any cause in the HC group (adjusted hazard ratio, 2.61; 95% CI = 1.10-6.17; p=0.03) when compared to no HC group; however, it was not found in the HC and AZ group (adjusted hazard ratio, 1.14; 95% CI = 0.56-2.32; p=0.72). There was no significant difference in the risk of need of mechanical ventilation either in the HC group (adjusted hazard ratio, 1.43; 95% CI = 0.53-3.79; p = 0.48) or in the HC and AZ group (adjusted hazard ratio, 0.43; 95% CI = 0.16 - 1.12; p = 0.09) when compared to no HC group.

Note that this paper is preliminary and have not peer-reviewed, therefore , It should not be used for clinical decision making or reporting of research to a lay audience

Table 3. Outcomes based on treatment exposure.

Outcome	HC N=97	HC+AZ N=113	No HC N=158	P value
Death – no. (%)	27 (27.8)	25 (22.1)	18 (11.4)	0.003
Discharge – no. (%)	70 (72.2)	88 (77.9)	140 (88.6)	

Conclusion:

- Hydroxychloroquine use with or without co-administration of azithromycin **did not improve mortality or reduce the need for mechanical ventilation in hospitalized patients.** On the contrary, hydroxychloroquine use alone was associated with an increased risk of mortality compared to standard care alone.
- Furthermore, these results highlight the **importance of prospective, randomized, controlled trial before widespread adoption of these drugs.**
- **Study limitation:** male patients were only included in this study.

Digital Health :



Article 3: A real-time dashboard of clinical trials for COVID-19

Published: April 24, 2020 in [the Lancet](#)

Summary:

The authors announce **the development of [COVID-19 clinical trials registry](#) dash board to collate all trials** developed: **Data are pulled from:** the International Clinical Trials Registry Platform, including those from the Chinese Clinical Trial Registry, [ClinicalTrials.gov](#), Clinical Research Information Service - Republic of Korea, EU Clinical Trials Register, ISRCTN, Iranian Registry of Clinical Trials, Japan Primary Registries Network, and German Clinical Trials Register.

They integrated AI as well as COVID19 research Hubs into the platform to allow accurate detection.

these innovative dashboard will allow easy Syntheses of these trials which will assist clinicians, researchers, and policy makers to make evidence-informed decisions to minimize the morbidity and mortality due to COVID-19.