

ABU DHABI PUBLIC  
HEALTH CENTRE

مركز أبوظبي  
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# Scientific Research Monitoring on COVID-19

08 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)



# Today's Highlights

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

## Scientific Research

- **Public health response:** Article that discusses new method used in surveillance during the COVID19 pandemics
- **Clinical feature:** Article discusses the possible pathway attributed to death in COVID19 patients.
- **Treatment:** Baricitinib a drug used for Rheumatoid arthritis suggested be a candidate therapy for COVID19 infection.

*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.*

*Listed articles may represent information that has been previously shared in the report and/or may target specific technical audience .*

## Others

1. [Seattle's covid-19 lessons are yielding hope](#)
2. [Covid-19: how a virus is turning the world upside down](#)
3. [Covid-19 in South Korea — Challenges of Subclinical Manifestations](#)
4. [Economic sanctions and Iran's capacity to respond to COVID-19](#)
5. [Understanding pathways to death in patients with COVID-19](#)



## WHO daily report

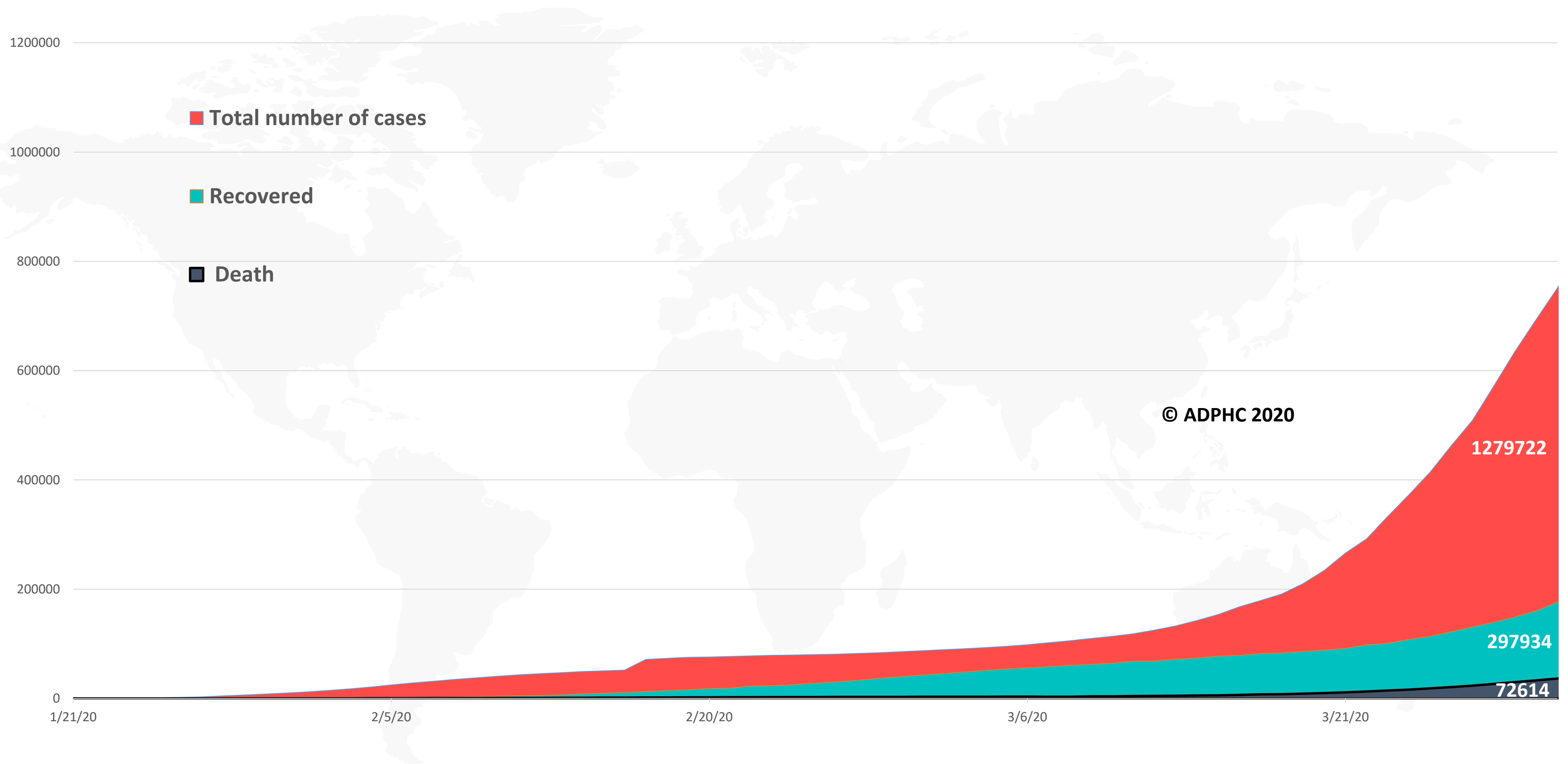
- One new country/territory/area reported cases of COVID-19 in the past 24 hours: São Tomé and Príncipe.
- 7<sup>th</sup> April, marks World Health Day and this year WHO pays tribute to the incredible contribution of all health workers, especially nurses and midwives. Nurses are the largest component of the health workforce and play a fundamental role in combatting COVID-19 and achieving Universal Health Coverage and the Sustainable Development Goals. WHO has published the first-ever report on the state of the world's nursing workforce. It renews calls on governments to invest in nurses.
- WHO Director-General Dr. Tedros, in a press conference held yesterday, reiterated concerns regarding the shortage of medical masks and other PPE and reminded people that masks should be used as part of a comprehensive package of interventions. WHO has released guidance on the use of masks in communities, during home care, and in healthcare settings.
- WHO is improving supply networks and logistics in clinical environments and sending equipment and testing kits worldwide.



# Epidemiology



Figure 1: Total number of infected, recovered, and death cases (January 21<sup>st</sup> to April 7<sup>th</sup>, 2020)

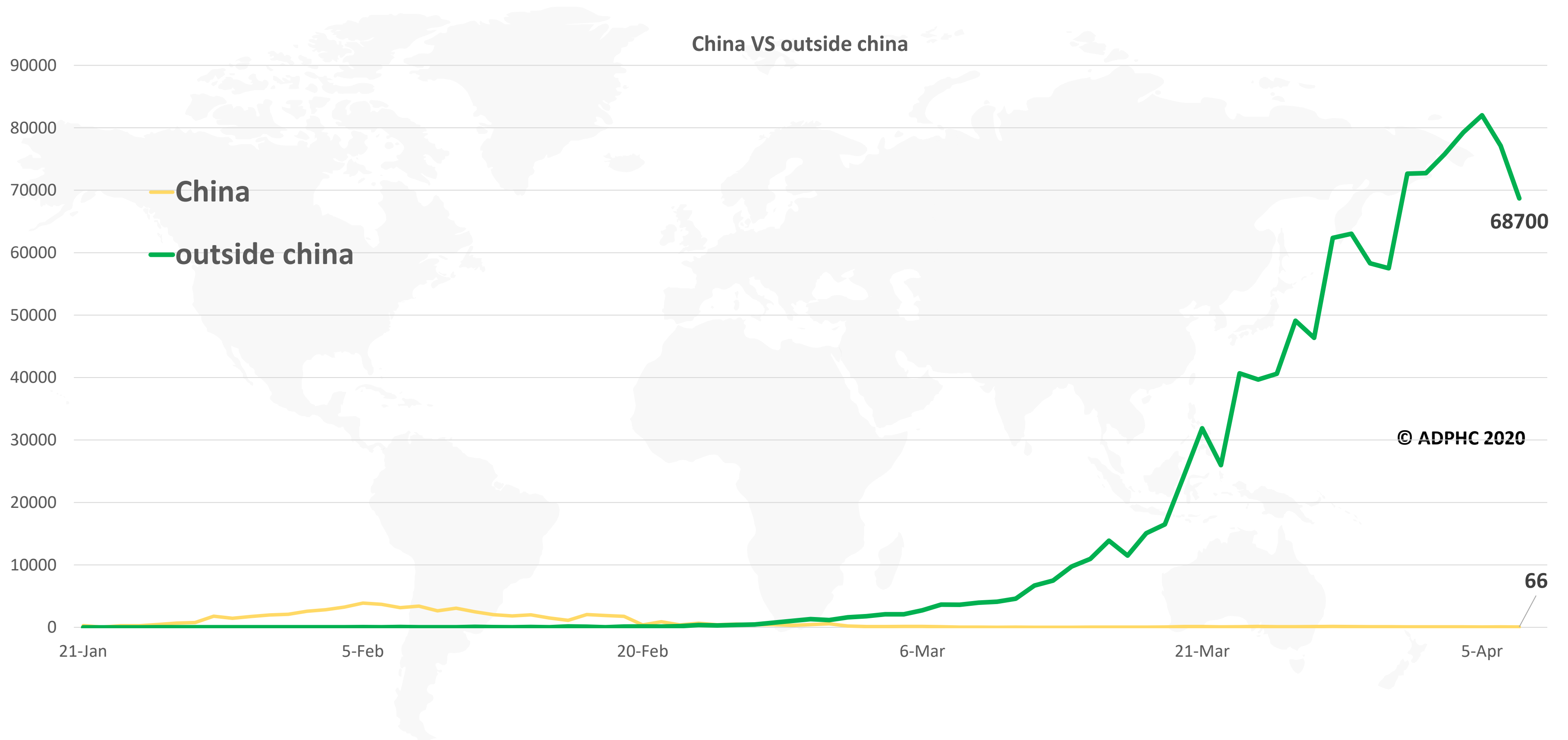


Line graph published by Abu Dhabi Public Health Center 2020.

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



**Figure 2: Daily new infected COVID-19 cases reported between (January 21 to April 7<sup>th</sup>, 2020).**



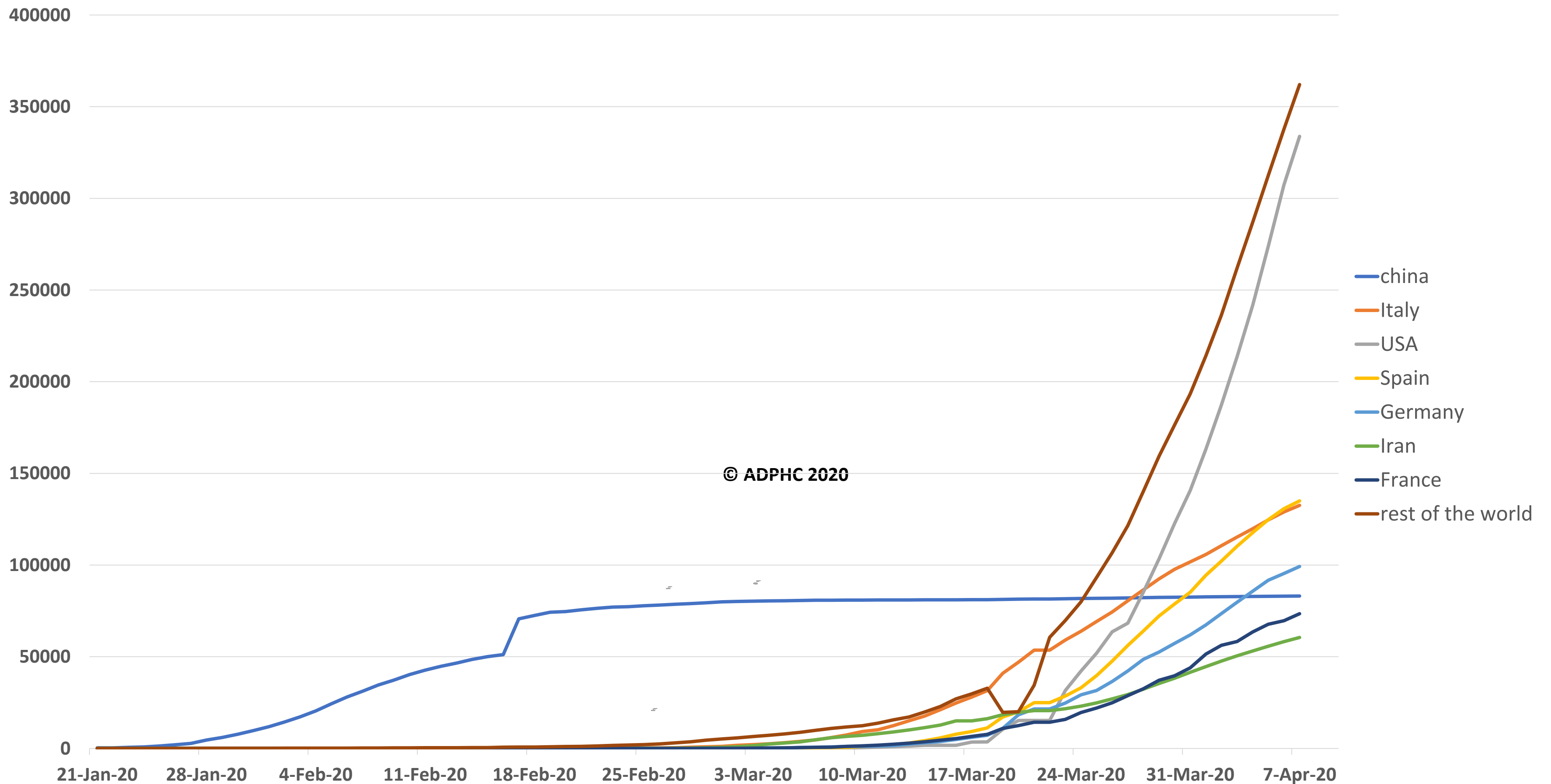
Line graph published by Abu Dhabi Public Health Center 2020.

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 April 6<sup>th</sup>, 2020).



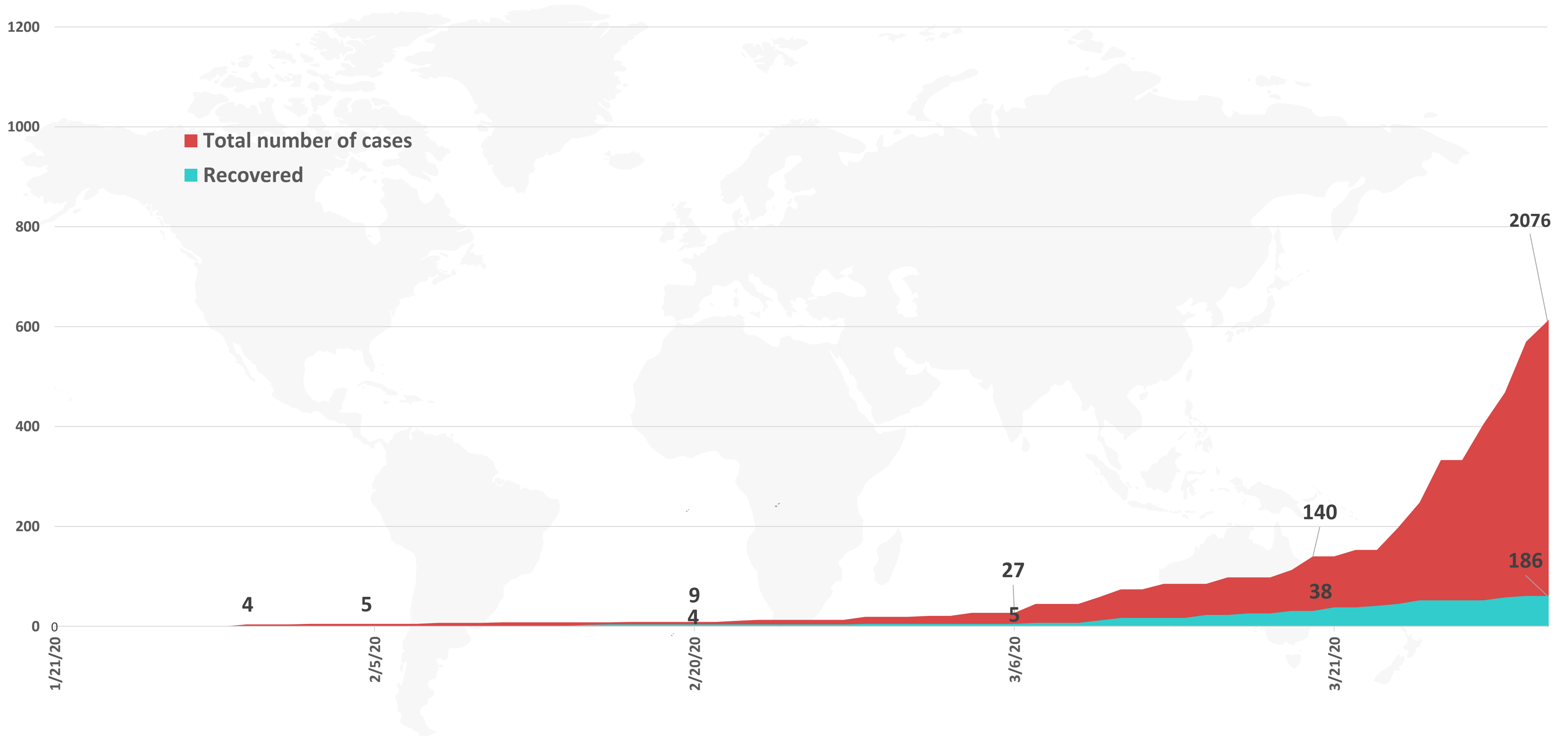
Line graph published by Abu Dhabi Public Health Center 2020.

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





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



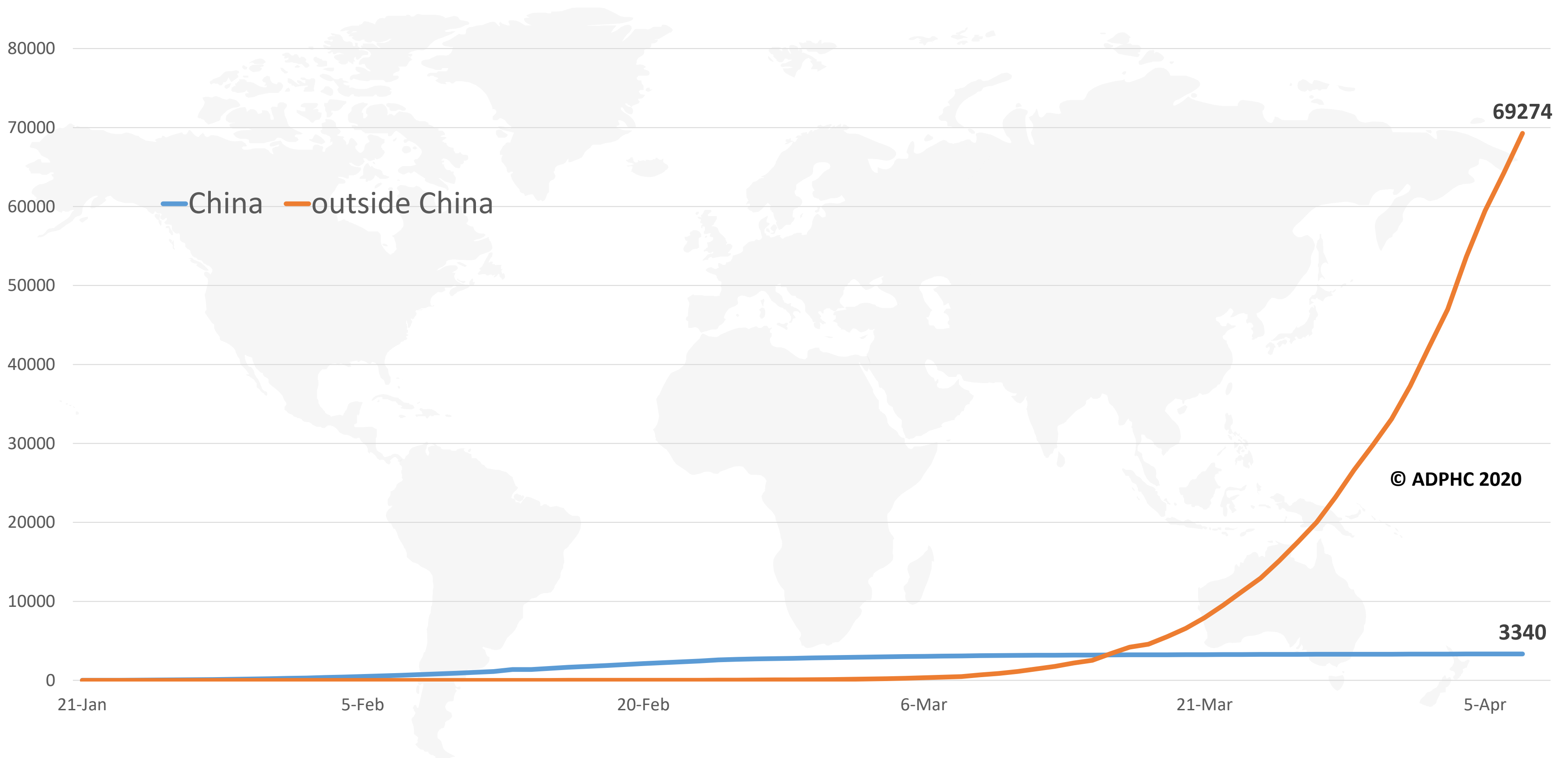
Line graph published by Abu Dhabi Public Health Center 2020.

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 21 to April 7<sup>th</sup>, 2020).**

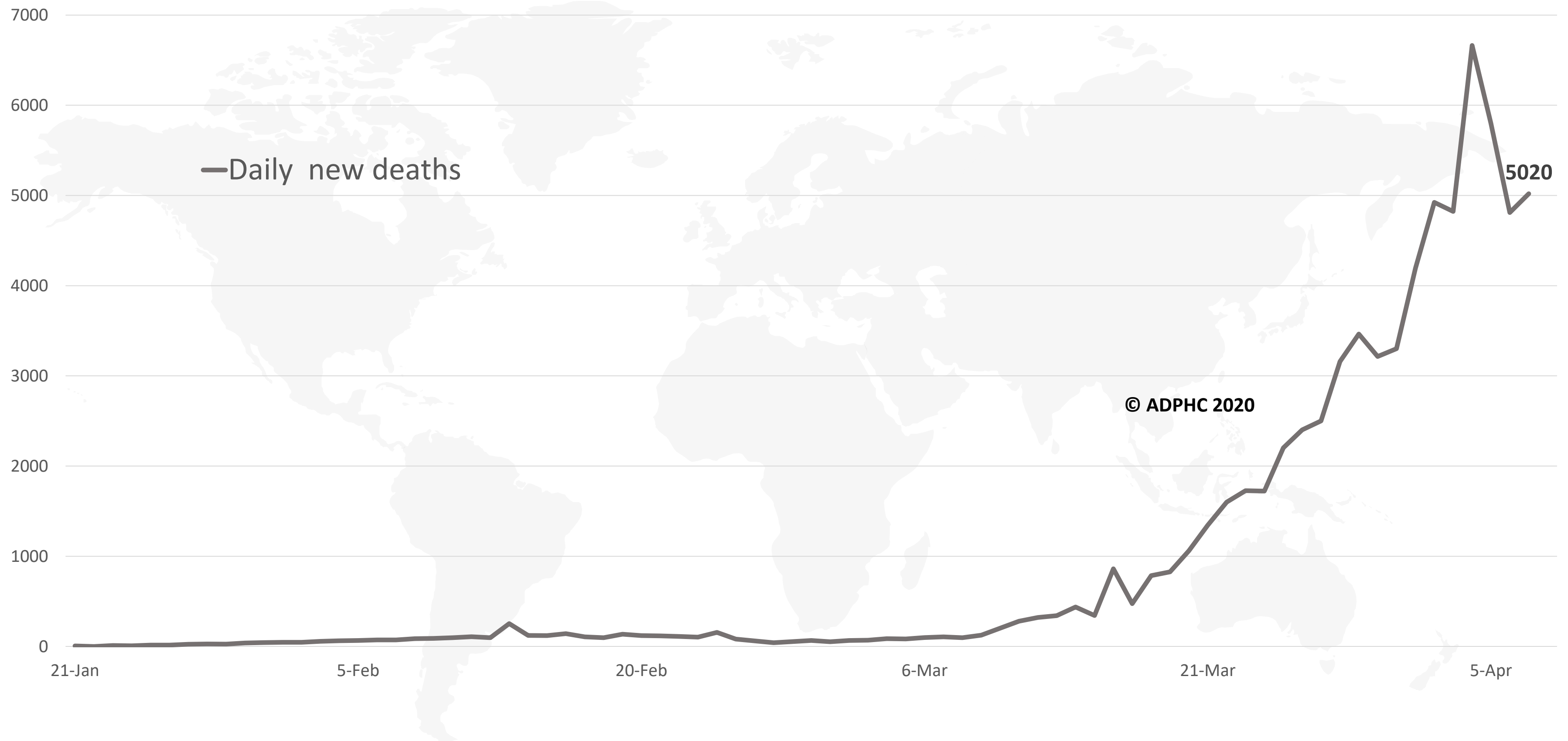


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



**Figure 6: Global daily new deaths due to COVID-19 (January 21 to April 7<sup>th</sup>, 2020).**

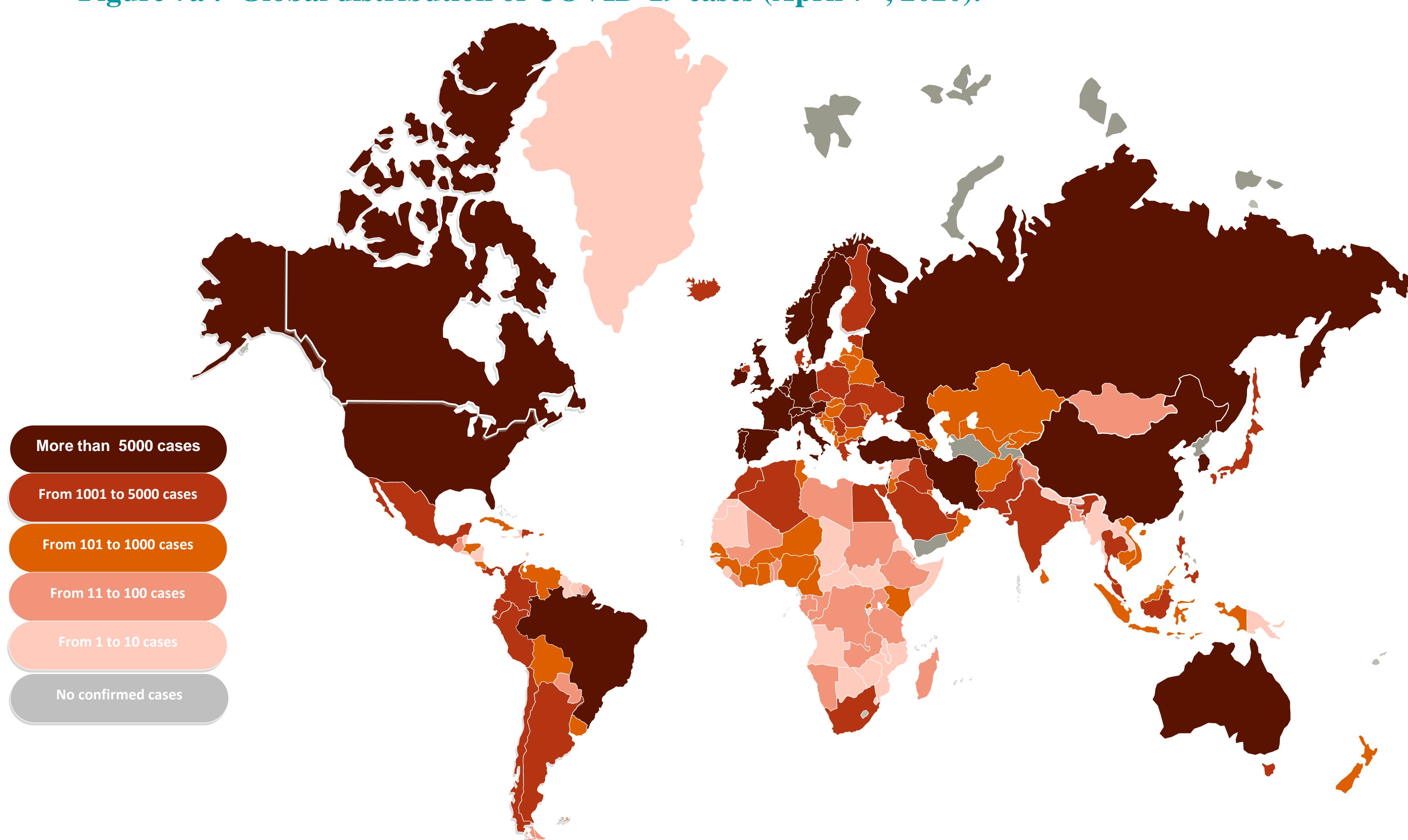


Line graph published by Abu Dhabi Public Health Center 2020.

Data resources: [WHO](#)



Figure 7a : Global distribution of COVID-19 cases (April 7<sup>th</sup>, 2020).



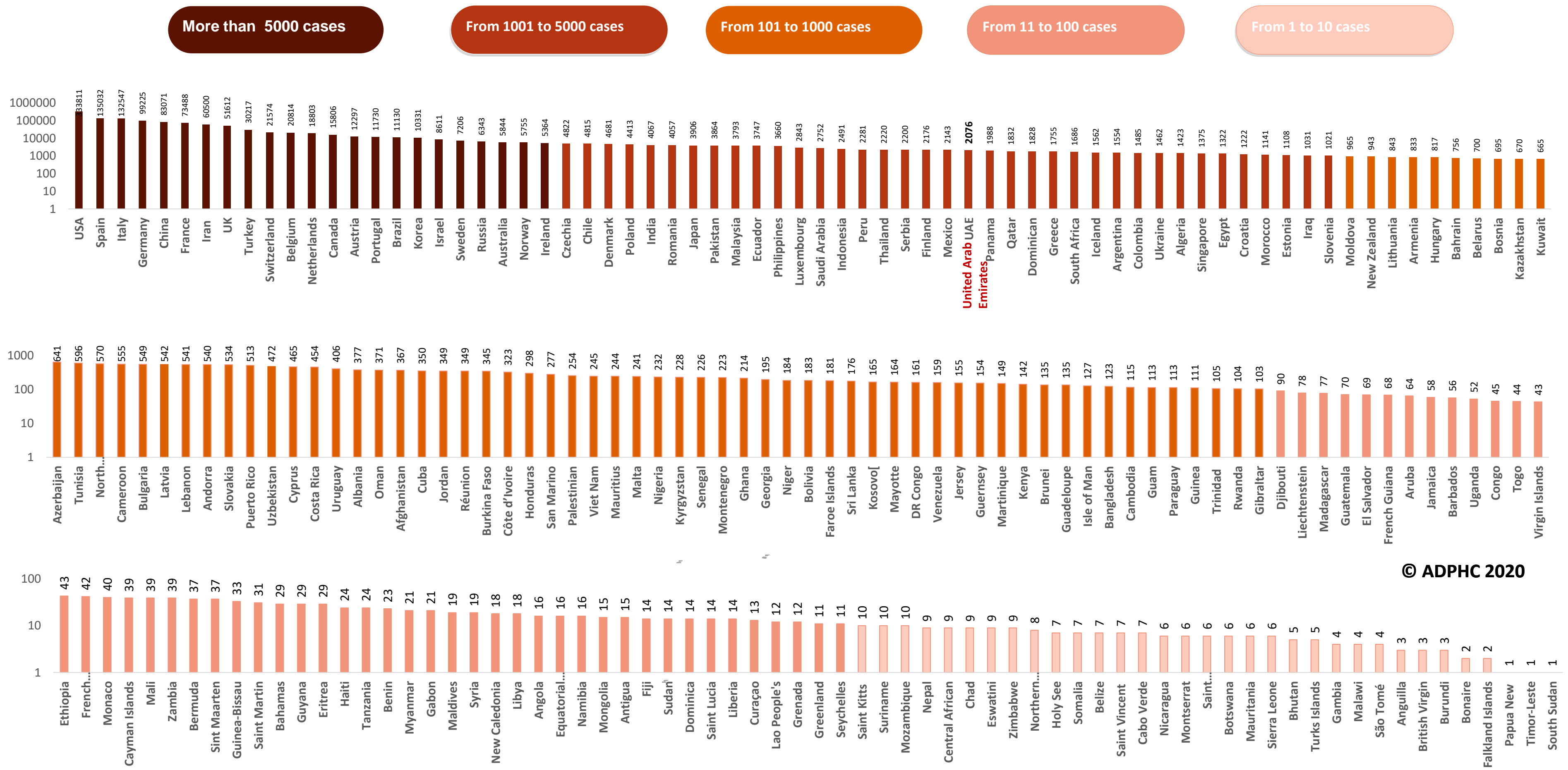
Map chart published by Abu Dhabi Public Health Center 2020.



# Epidemiology



Figure 7B: Bar chart illustrate the global distribution of COVID19 cases April 6<sup>th</sup>, 2020)



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Map chart published by Abu Dhabi Public Health Center 2020.

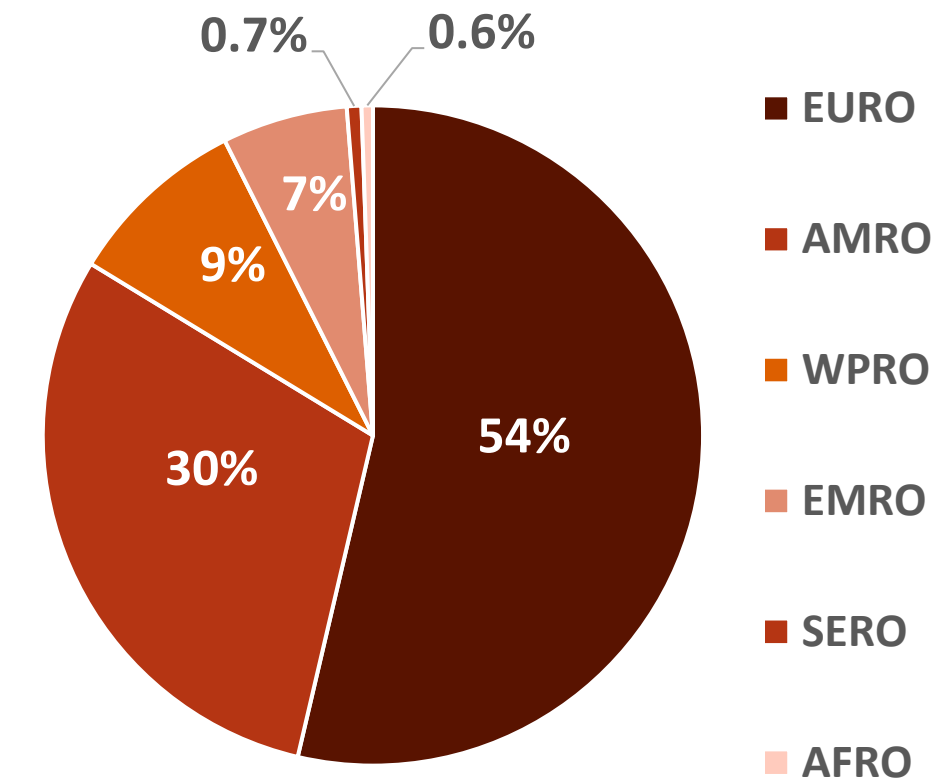
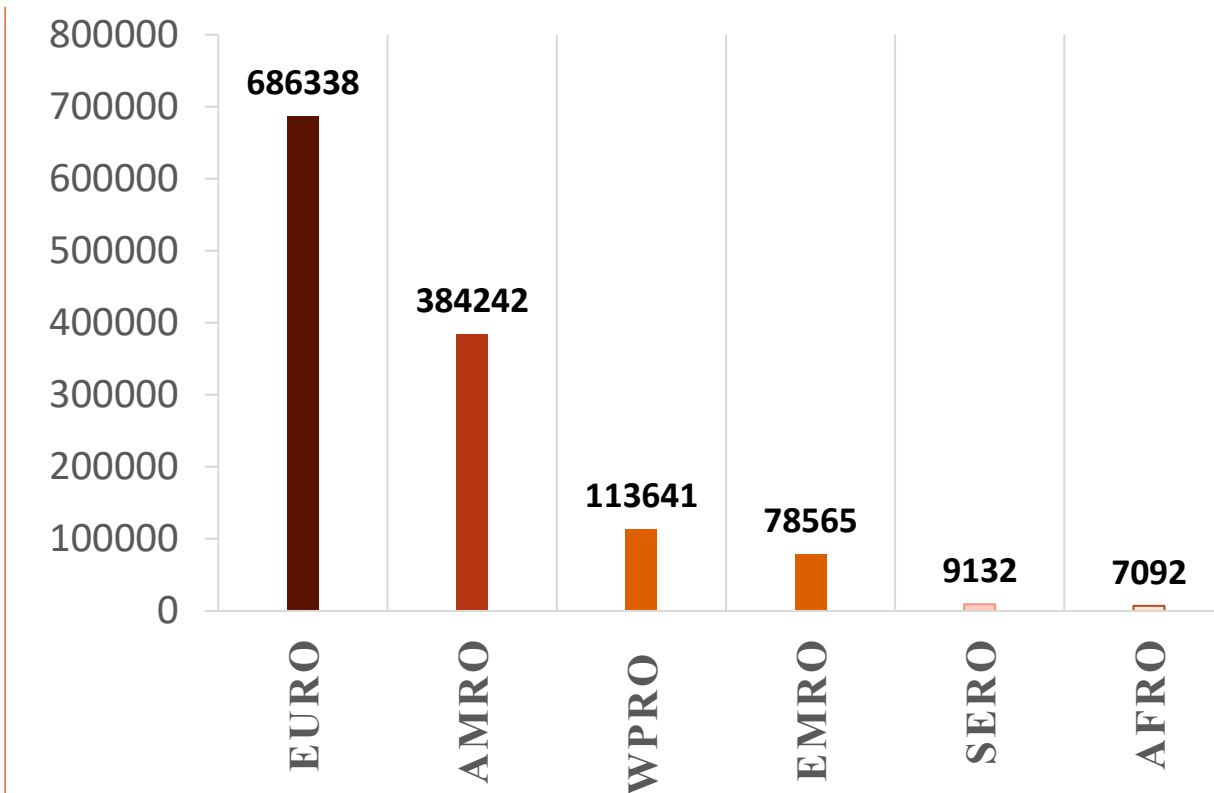
Data resources: [WHO](https://www.who.int/)



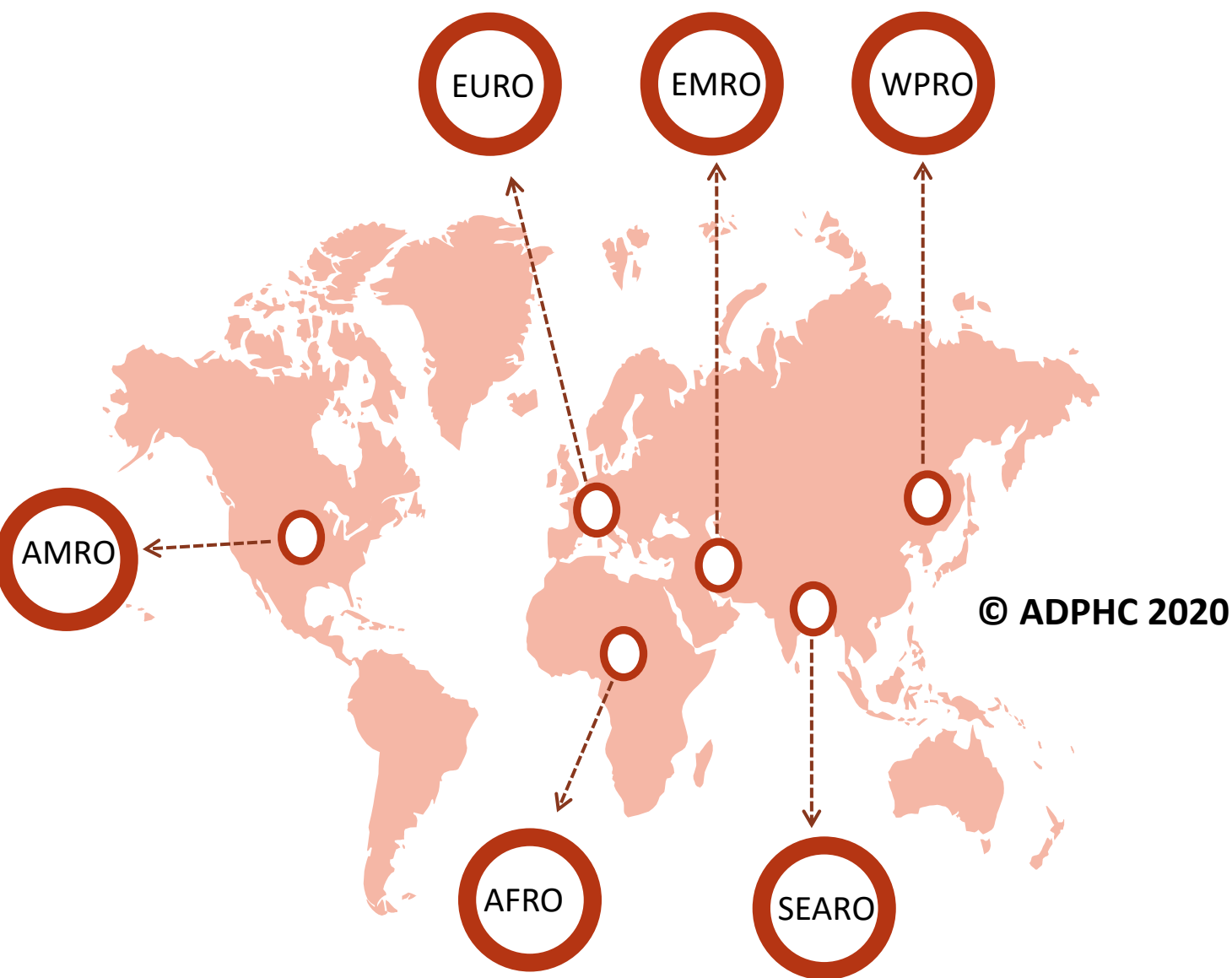
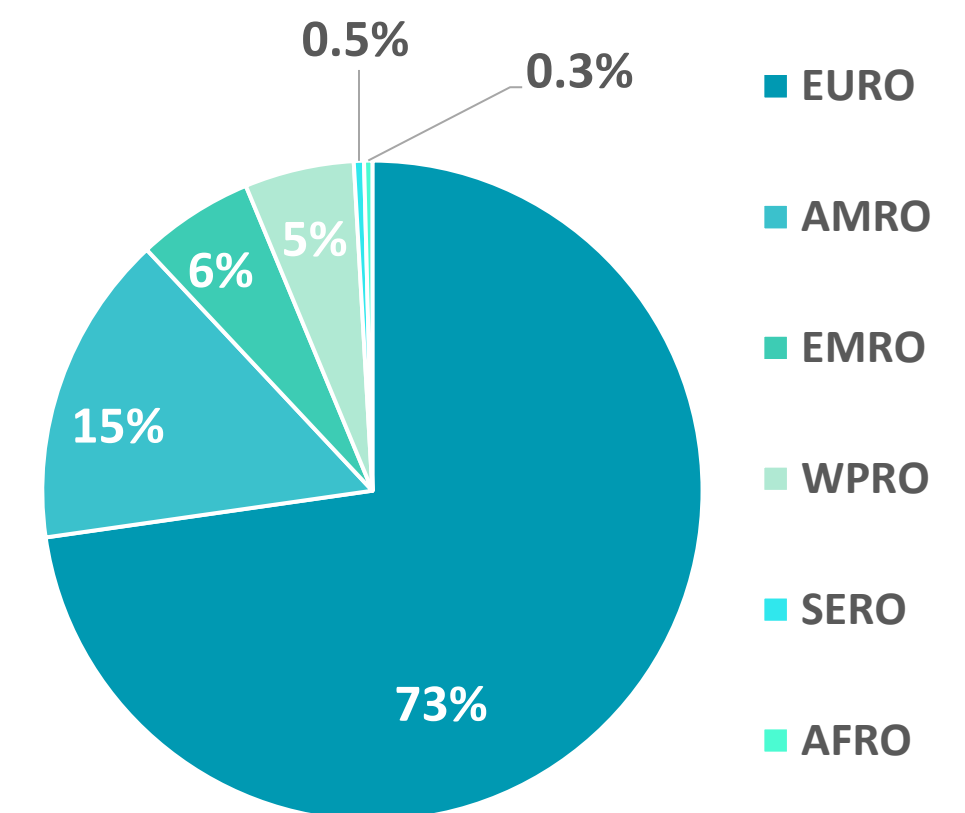
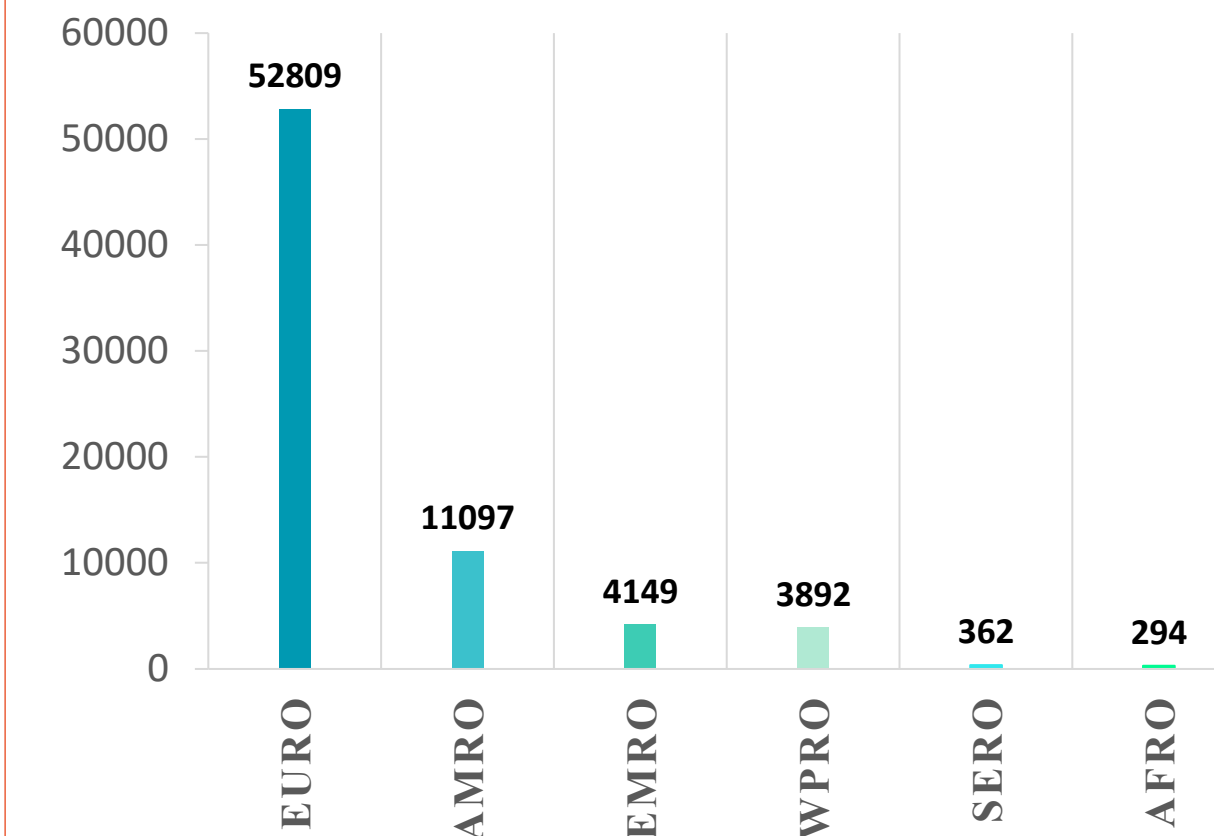


Figure 8: illustrate the Global distribution of COVID19 cases per region (April 7<sup>th</sup>, 2020)

## INFECTED



## DEATH



Map chart published by Abu Dhabi Public Health Center 2020.

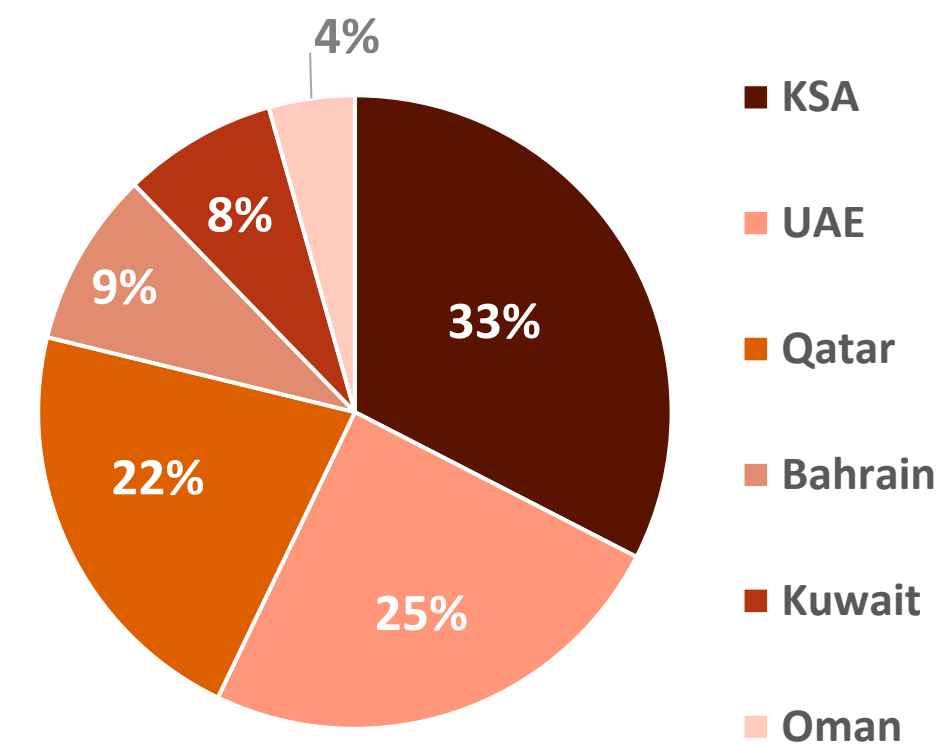
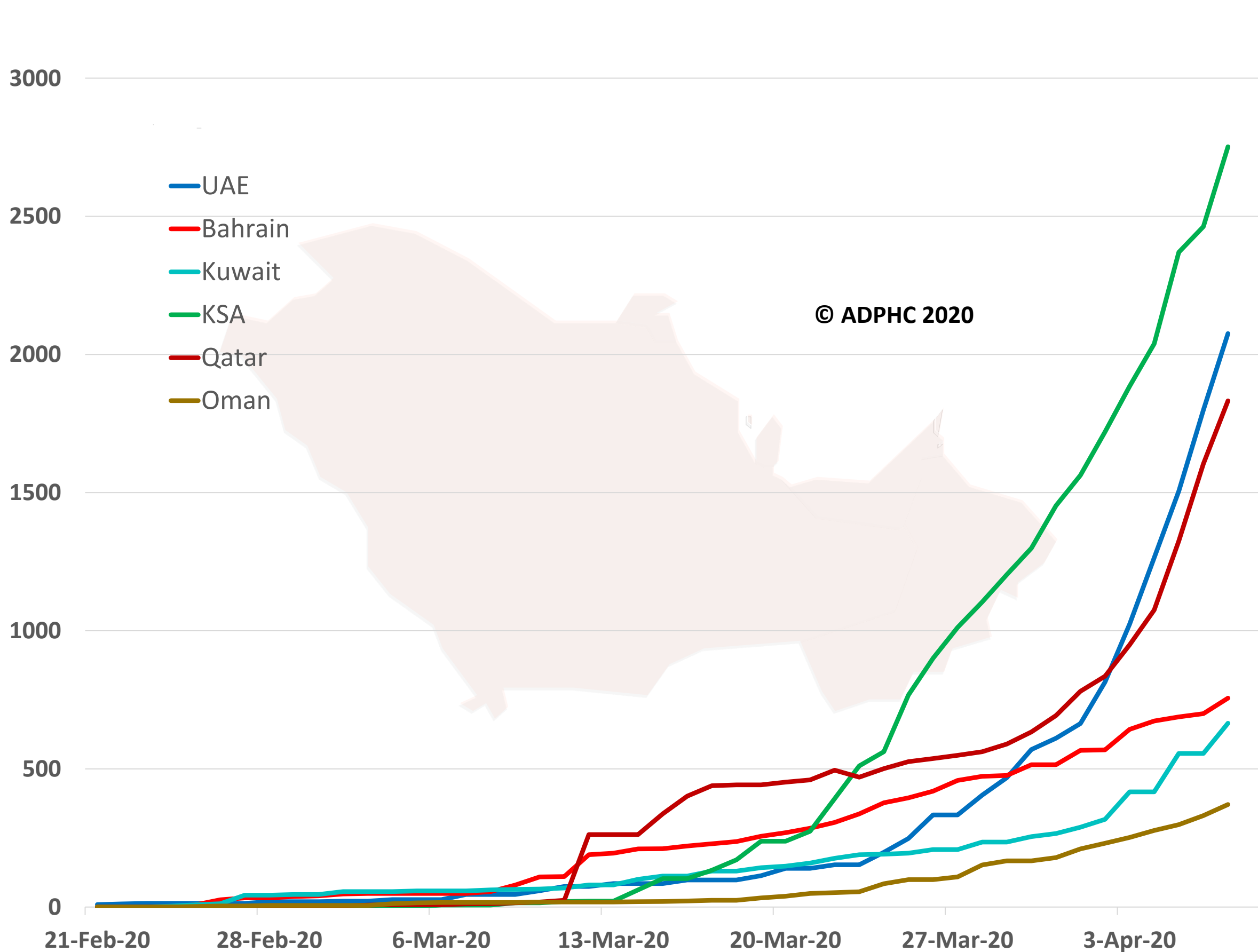
Data resources: [WHO](https://www.who.int)

# Epidemiology

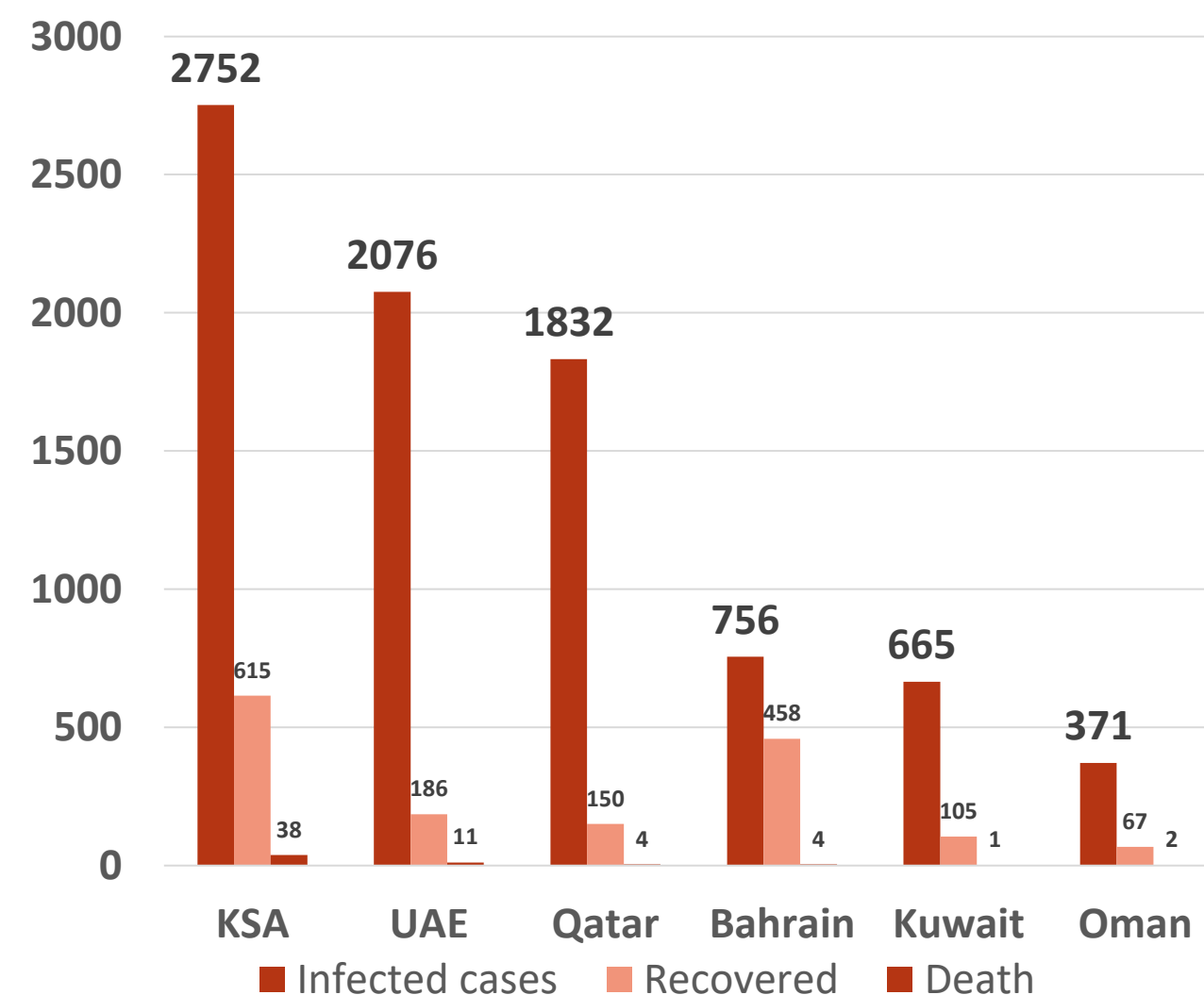


**Figure 9: Comparative analysis of the distribution of COVID19 cases in GCC countries (April 6<sup>th</sup>, 2020)**

## TOTAL NUMBER OF INFECTED CASES



## Total number of infected, recovered and Deaths



Map chart published by Abu Dhabi Public Health Center 2020.

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



# Transmission

## Article 1: Health surveillance during covid-19 pandemic

Published: April 6, 2020 by [BMJ](#)

### Summary:

The article address the New health surveillance technologies that use machine learning and automated decision making to parse people’s digital footprints, identify those who are potentially infected, trace their contacts, and enforce social distancing.

<b>Israel</b>	<ul style="list-style-type: none"> <li>• Authorized the repurposing of an anti-terror phone tracking program , seeking the location histories of its whole population to monitor and enforce self-isolation of people who tested positive.</li> <li>• Allowing citizens to check whether they have crossed paths with anyone infected and need to self-isolate.</li> </ul>	<p><b>Common concerns:</b></p> <ul style="list-style-type: none"> <li>• The high risk of false positive results generated by unreliable, biased, or non-transparent algorithms.</li> <li>• Potential injustices and compromised civil rights</li> <li>• psychological consequences</li> <li>• <b>South Korea’s use of apps to publicize the movements of people with covid-19 has, for example, raised fears it might lead people to avoid being tested</b></li> <li>• an opt-in, privacy preserving design would best support “both reducing the number of cases and enabling people to continue their lives in an informed, safe, and socially responsible way</li> </ul>
<b>China</b>	<ul style="list-style-type: none"> <li>• Alipay and WeChat, released apps that combine users’ health, location, and financial data to generate a personal infection risk rating.</li> <li>• Government and businesses are using these technologies to decide whether to allow someone to access shops, transport, or public spaces</li> </ul>	
<b>US</b>	<ul style="list-style-type: none"> <li>• companies such as Google, Facebook, and controversial startup Clearview</li> <li>• Using AI and location data mining or facial recognition to trace infected people and to monitor and enforce isolation.</li> </ul>	
<b>UK</b>	<ul style="list-style-type: none"> <li>• Developing an app that will automate covid-19 contact tracing, following China, Israel, and Singapore.</li> <li>• Notably, however, the UK’s deployment will be opt-in, and data will be kept private.</li> </ul>	

Health psychology can provide evidence to guide the design of interventions that support patient autonomy and ethical frameworks for AI are increasingly aligning with this principle





## Article 2: Understanding pathways to death in patients with COVID-19

Published: April 06, 2020 by [the lancet](#)

### Summary:

The article discuss different pathway that lead to the death of patients infected with COVID19:

#### Panel: Three possible characteristics of the dying process in COVID-19

##### Predominant terminal organ failure

- Terminal respiratory failure: mechanical ventilation and ECMO used
- Terminal respiratory failure: mechanical ventilation used, ECMO available but not used
- Terminal respiratory failure: mechanical ventilation used, ECMO not available
- Respiratory failure: mechanical ventilation available but not used
- Respiratory failure: mechanical ventilation hardly or not available
- Septic shock, multiple organ failure
- Cardiogenic shock (acute myocardial injury or myocarditis)
- Other

##### Proportionality of care in the dying process

- Withholding life support: life support available but considered to be disproportionate; life support hardly available (significant constraints)
- Withdrawing life support
- Full care but no cardiopulmonary resuscitation
- Full care including cardiopulmonary resuscitation

##### Involvement of COVID-19 in the dying process

- Death attributed only to COVID-19 (previously healthy, predicted long life expectancy)
- Death primarily due to old age, frailty, or advanced disease (COVID-19 is an epiphenomenon)
- Death due to COVID-19 in an individual with limited life expectancy

COVID-19=coronavirus disease 2019. ECMO=extracorporeal membrane oxygenation.





## Article 3: Baricitinib for COVID-19: a suitable treatment?

Published: April 03, 2020 by

### Summary:

A drug to treat rheumatoid arthritis called baricitinib, is predicted to reduce the ability of the virus to infect lung cells.

In COVID19 Most viruses enter cells through Receptor

The receptor that 2019-nCoV uses to infect lung cells might be ACE2, a cell surface protein on cells in the kidney, blood vessels, heart, and, importantly, **lung** AT2 alveolar epithelial cells. One of the known regulators of this process is a protein kinase 1 (AAK1). Baricitinib on therapeutic dosing (either as 2 mg or 4 mg once daily) is sufficient to inhibit AAK1, the author suggest it could be trialed, using an appropriate patient population with 2019-nCoV acute respiratory disease, to reduce both the viral entry and the inflammation in patients.

**CURRENT TRIAL on COVID19: [ITALY](#), [CANADA](#)**

